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THE ARYAN AND THE SEMITE.

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IN a previous paper we have endeavoured to define the relation of the great Turanian family to the Aryan branch of the Caucasian race. We now purpose attempting something of the same kind in reference to the Semites, whose historic antecedents and racial specialities were till recently, but imperfectly understood either by scholars or anthropologists. The truth is, the Semite has been underestimated by his Aryan rivals. Intimately known to us, only through the Hebrews, we have largely ignored the learning of Egypt and the imperial splendour of Assyria; while Phœnician commerce, Carthaginian power, and Saracenic conquest have been unduly relegated into the background of history, to make way for the well-deserved prominence universally accorded to the annals of Grecian culture and Roman greatness. Till quite recently, this was unavoidable. The scholarship of Europe was, and to a large extent still is, purely classic. This, of course, implies that we have been accustomed to regard the ancient peoples of the East through Hellenic spectacles,—a very doubtful procedure, if our object be, not the confirmation of our prejudices, but their supercession by the truth. The days of this one-sided pedantry are now, however, numbered. Archæology, and the study of Oriental languages, have somewhat enlarged our ideas. We now know not only that there were colossal empires before that of Rome, but also a civilisation anterior to that of Hellas. Babylon and Nineveh, Thebes and Memphis, have become somewhat more than faint echoes and vague traditions. We now know that there was a great cycle of what is perhaps not inaptly termed monumental civilisation, whereof the written records have utterly perished, and which is, nevertheless, being slowly rehabilitated by the investigation of its ruins and the interpretation of its inscriptions. The importance of such archæological studies cannot well be overestimated. We have thus revealed

to us the history of a great family of man, whose annals seemed to have irretrievably perished, or at best been preserved for us only in the fragmentary form of incidental notices in the prejudiced chronicles of their enemies or successors.

In truth, the greatest wars which history narrates as having occurred within the Caucasian area, were those between the Semites and Aryans. To say nothing of the obviously Persian physiognomies still preserved on the walls of the royal tombs in the Thebaid, indicative of prehistoric relations, pacific and militant, between the eastern Aryans and the early dwellers in the land of Misraim, we find at the dawn of written history, the great fact of Babylonian subsidence beneath Persian supremacy, when the sceptre of western Asia passed from Semitic to Aryan hands. Then we have the conquest of Egypt by Cambyses, whereby the entire area of Semitic civilisation was rendered subject to Persian supremacy. And while these events were being transacted, we read of the gradual rise of Carthaginian power, obviously produced by the transference of Semitic wealth and population westwards, probably to escape the more immediate pressure of Aryan conquest in the hither east. And thus, once more, the Semite struggled with the Aryan for the supremacy of civilisation, and, under Hannibal, almost achieved it. Do we yet understand the full significance of Egyptian and Carthaginian power, those mighty colonial extensions of Asian civilisation over an African area? Have we duly pondered their racial import, and the evidence they afford that Africa is the appanage of Asia, as America is of Europe?

But it must not be supposed that this great racial conflict terminated with the fall of Carthage. It was renewed on a still grander scale at the Crusades, when the Aryan Christians of the West threw themselves on the Saracenic Mohammedans of the East. It also reappeared at the Moorish invasion of Spain and the Arabian conquest of India. Using the Seljucks and Osmanlies—that is, the western Turanians—as its instruments, the Semitic faith of the crescent carried these barbarian converts to the supremacy of western Asia, and ultimately to the conquest of Constantinople. With such antecedents, extending over fully three thousand years, and in a sense antedating history, we may be quite sure that this great racial conflict has not yet terminated,—in truth it has scarcely paused. The conquest of India by the English, and that terrible mutiny,—which was intended to restore the *effete* descendant of the Great Mogul to the imperial throne of his illustrious ancestors,—were but the later incidents of its continuation; while the inevitable decline of Turkey, and the insatiable ambition of Russia, may suffice to show that the materials for its renewal are by no means wanting.

In truth, if the Semite represent the man of the South, with his moral exaltation and his theological mission, and the Aryan, in contradistinction, represent the man of the North, with his intellectual expansion and his consequent aptitude for literature, science, and art ; then, as the racial embodiments respectively of faith and reason, they present the bipolar aspect of man's superior nature, whose harmony is the effect and expression of well-balanced antagonism. In a sense, their rivalry is eternal, because it is elemental. Their opposition can never cease ; for it is rooted in nature, and is simply a manifestation of that unresting interaction which characterises all her forms.

If the foregoing view be correct, then we shall find Aryan and Semite on the moral as well as the physical battlefield, the one being the complement as well as the antagonist of the other. This may be succinctly summed up by saying that philosophy is the vocation of the Aryan, and religion the mission of the Semite. Such a statement, however, requires some detailed illustration for its confirmation. Let us, then, interrogate history, and listen to its response.

The three great religions of existing Caucasian man are Judaism, Christianity, and the faith of Islam, all of Semitic origin ; while, on the other hand, our science, literature, and art are mostly of Aryan lineage. So strongly pronounced, indeed, are these racial proclivities that the religion of the Aryan ever tends to assume the form of a philosophic Pantheism, eventuating in a deification and worship of nature, as among the ancient Hindoos and modern Europeans ; while, conversely, the science of the Semite is ever prone to sink into a superstition, as in the astrology of the Chaldeans and the alchemy of the Saracens. This is only saying in other words that, influenced by his predominant moral principles, the Semite believes and worships, where the Aryan, guided by his preponderating intellectual faculties, investigates facts and deduces conclusions. Hence to define them, we may say that the one is a priest and the other a philosopher ; that the former spiritualises and elevates humanity, while the latter enlightens and expands it. Both are necessary ; the one to correct the excesses and extravagancies of the other ; for left to their own unlimited tendencies, the Semite degenerates into an exclusive bigot, and the Aryan sinks into a utilitarian materialist.

These general statements, however, are by no means sufficient, and have, indeed, been put forward simply as a convenient summary of the question, into whose minuter details we now propose to enter. And, firstly, let us ask, what is the Caucasian, whereof Aryan and Semite are but the two great subdivisions ? And we reply, that he is preeminently the man of civilisation. All pure savages incline either to the Negroid or the Turanian type ; they do so from the absence of

adequate nervous force for their effective development into the truly human form. This is not the utterance of prejudice, but the simple statement of a fact. The coarser types are differenced from the finer by their inferiority, that is, by the comparative weakness of the moral and intellectual elements, and the preponderating power of the passional and impulsive. This is clearly indicated, to a properly qualified observer, in their physical organisation. In the Negroid type, the brain lacks volume; the nervous system is not adequately centralised: and this brain, thus deficient in quantity, is equally wanting in quality. The rude mould of the features, where all the indications of intelligence are weak, while those which imply sensuality are large,—the rudimentary character of the hands,—the semi-quadrumanous structure of the feet, and the generally unfinished build of the whole body, to say nothing of the porous skin and its woolly envelope,—are ample and undeniable evidence of the exceedingly coarse quality of the Negroid family. And this brain, thus deficient both in quantity and quality, is also equally wanting in form. The cranium is compressed laterally and retreats anteriorly, indicating an utter incapacity either for breadth of view or depth of thought. But it is elevated coronally and developed posteriorly, showing that here, in this rootman of the South, we have the invaluable germs of moral sentiment and domestic affection.

Diametrically opposed to this, as if formed under transverse influences, we have the broad-built Turanian, in whom, however, with somewhat more of the human, there is still much of the animal element. He has, in excess, that which is wanting in his Negroid brother—breadth. His volume of brain is enormous, though its quality is coarse and its form rude. He has attained to a higher grade of centralisation, and we have reason to believe, therefore, of specialisation, than the primitive man of the South. His deficiency is in altitude. He lacks the higher moral sentiments, and the creative portion of the intellectual faculties. But he has practical power and executant ability of a high order. In other words, he has force, but is wanting in susceptibility to the higher motives for its noblest exercise. As an instrument in the hands of a superior race, he may prove invaluable; but as a leader and pioneer of humanity, he is fatally deficient.

What then is the savage? and we reply, that he is man on the plane of nature, adapted—by the limitation of his faculties and the bluntness of his susceptibilities—to the only social and physical life possible in the wilderness and the forest, at the dawn of human existence on earth. Any higher type would have been out of harmony with the circumstances; for it would have implied wants that could

not be satisfied, and capabilities that could not be used, to say nothing of aspirations existing only to be blighted, and sensibilities developed only to be wounded. Beings so limited in opportunity needed to be proportionately circumscribed in endowment, otherwise "the eternal fitness of things" would have been cruelly violated. But such mental deficiencies, when characteristic of a race, are of necessity reflected in their organisation ; that is, in the volume and contour of the brain,—in the form of the features,—in the expression of the face,—in the build of the body, and in the fashion of its extremities. And thus, then, it is that we have the savage, precisely as we have the lion and the eagle, the jackall and the vulture, we have him as an organic adaptation to a certain environment with which he is in harmony, because, as the advocates of development would say, he was its product. Now, that this primitive savage always inclines either to the Negroid or the Turanian type, is a fact of no slight significance in the science of man, and one to which, therefore, we may again have occasion to refer.

And now, perhaps, the reader will begin to understand the truth and force of our assertion,—that the Caucasian is emphatically the man of civilisation, as contradistinguished from the savage. What, then, is this Caucasian ? And we reply, the highest type to which man has yet attained. He presents us with that form of humanity in which cerebration and respiration are most powerful in proportion to alimentation and reproduction. He is the most effectually developed type of man, the one in whom the functions, that are specially human, are the most powerful in proportion to those which are also bestial. This, of course, implies an organic structure, adapted as an instrument for the efficient discharge of these higher duties. And accordingly we find that his brain is equal in volume to that of the Turanian, while it is superior in form and finer in quality ; thus conducing, through intensity and activity, not only to greater mental power, but also to power of a higher order. His thoughts are more logically concatenated, and his conceptions are more beautiful and artistic. His special superiority to the Turanian is, however, in the moral sentiments. He is better developed coronally ; and hence, is more amenable to the influence of " faith, hope, and charity," and, we may add, justice. Thus, in a sense, it may be said that he unites the excellencies of the two inferior races without the defects of either. He has the breadth of the Turanian without his coarseness, and the altitude of the Negro without his narrowness, while in temperament he immeasurably transcends them both. Of course, with such a brain, so powerful in structure, so fine in quality, so complex in its convolutions, and so intense in its functions, there must be a face to

correspond; that is, with features distinctly marked and delicately chiselled, and susceptible, in duly cultured individualities, of all the varying shades of intellectual expression and spiritual emotion. For the same reason, that is, by the law of correspondence,—or, in other words, the harmonic relation of the several parts of every normally constituted organism to each other,—the extremities are perfectly finished and thoroughly specialised, the hand being solely prehensile, the foot simply locomotive in ordinary function, while the thoracic thoroughly dominate the abdominal viscera. It need scarcely be said to any competent observer, that this is rather the ideal to which the average existing Caucasian tends, than the real, to which, in the majority of instances, he has actually attained.

And now, then, we are perhaps somewhat better prepared to estimate, at its proper value, the absurd talk which we sometimes hear about "our savage ancestors"! meaning, of course, thereby, "the ancient Britons", or in anthropological terms, the Celts of western Europe. We have swept the world from the equator almost to the pole, and we have circumnavigated it, and yet we have never discovered a race of savages of even approximately Caucasian type. In truth, the thing is impossible. A Caucasian is a being with aptitudes and susceptibilities adapted to the requirements, and needing the conveniences of civilisation, and so, save in a few exceptional instances, ill at ease amidst the rudeness and privations of savagism. This is only saying, in other words, that as the savage is suited to his environment, so the civilised man is suited to his environment,—"the fitness of things" demanding the one as well as the other.

But this high-caste Caucasian, this man of civilisation, is organically, lingually, and theologically, divisible into two well-marked families, Aryans and Semites, or Indo-Europeans and Arabians; the former especially located in Europe, and the latter in Asia, although the first are the predominant population of Persia and India, and the last extend throughout all northern Africa. It may thus be said that the Caucasian occupies the temperate zone of the world from India to Britain, with the Negroid races to the south, and the Turanian to the north, the Semites, resting on and through Moors, Tuaricks, Nubians, and Abyssinians, gradually shading off into the former; while the Aryans rest on and through Slavons, Muscovites, and Cossacks, gradually shade off into the latter. Thus, whether we regard their geographical position, their mental constitution, or their organic specialities, we shall find that the Semites are allied, as flower and root, to the Negroid type of the south, and the Aryans to the Turanian type of the north. These leading facts, even thus succinctly stated, without their corroborative details and accessories, are, to say

the least of it, eminently suggestive. They suffice to show us how little we yet know, how far we are from a satisfactory solution of the great race problems, and consequently, how much yet remains to be done, whether in the accumulation of facts, or the deduction of conclusions.

Foremost among the theories which have been propounded to account for the present location and distribution of these races, is that which attributes an eastern origin to the Aryans, and accounts for their presence in Europe, by the successive waves of an overwhelming and all-absorbing emigration from their Asian seats, in ages which, though decidedly prehistoric, are still within the range of reliable tradition. It need scarcely be said that this is only part of a larger whole,—the somewhat mythical hypothesis which regards Asia as the primal seat of man and the cradle of civilisation, and which consequently predicated the unity, if it does not imply the aboriginally high-caste organisation of humanity. Now, in previous papers, we have shown that this Orientalism of tradition is probably due to the undoubted fact, that civilisation and empire have been moving north-westwards during the historic period, and, of course, carrying with them traditions calculated to aggrandise Asia at the expense of Europe. While there are not wanting very important data, derived from archeology, mythology, comparative anthropology, and philology, which seem to indicate the probability of a previous movement in an exactly opposite direction; namely, south-eastwards, and of which the existing colonial effects are seen in the presence of European-speaking peoples in Persia and India, whereof the latter are avowedly immigrant conquerors from the north-west.

Let us examine this eastern Aryan hypothesis somewhat more in detail. And, firstly, what are the facts in relation to it? We find an Aryan-speaking population of predominantly Caucasian, though partially Turanian type, inhabiting the whole of Europe, with the exception of the apparently aboriginal Finns and Lapps in the north, and the Biscayans in the south, together with the comparatively recent and historically immigrant Huns and Turks in the east. Europe is then, undoubtedly, at present an important province of the great Aryan area; in truth, numerically, politically, and intellectually the most important: and not only so, but we find that its several languages are radically and grammatically, in terminology and structure, of Aryan type, their oldest extinct forms and their existing peasant dialects being those in which their congruity with the Sanscrit and Zend are most apparent. With the exception of the Biscayan geographical names in Spain, the south of France and Italy, there is nothing to indicate that the Aryans of Europe are intrusive

immigrants, as they undoubtedly are in India, but rather aborigines, as far as such a phrase is applicable to any type not absolutely savage. But it is quite otherwise with the Hindus and Persians. They are on every side surrounded and closely pressed upon by alien populations of Semitic or Turanian lineage. Their true area is very limited, for India is undoubtedly Turanian ; while much of (political) Persia is now in possession of the Tartars, as large portions of it were once in the possession of the Semitic Assyrians. In truth, when we reflect on the wide diffusion of the Arabs (proper), and on the early rise and extended sway of the Semitic empires that arose on the Tigris and Euphrates, we cannot but pause ere accepting the utterly improbable hypothesis of Aryan origination in the neighbourhood of Balk, and the diffusion thence of this geographically and lingually isolated type over the entire area of Europe. So far, indeed, from the racial relationships and more immediate surroundings of the eastern Aryans being indicative of their aboriginality, they are strongly suggestive of the hypothesis that they were intrusive immigrants of, probably, European lineage, and whose primal home was rather on the Elbe and the Vistula than the Jaxartes. The truth, indeed, is, that the Aryan patriarchs who celebrated their simple sacrifices to the sacred chant of the Vedic hymns, were isolated strangers, maintaining themselves only by the utmost efforts against the incessant attacks of alien races. Whenever, indeed, we come in direct contact with primitive Aryan life in the East, we find it to be one of deadly conflict, not with lingually and racially allied peoples, but with religiously hostile and barbarian strangers, whose destruction was a duty due alike to God and man.

But it was quite otherwise with the Semites. The Syrian and Asyrian were simply the civilised extensions and outposts of the Arab, that magnificent aborigine of the southern wilderness, never savage, though always simple, and who, in his innate grandeur and external barbarism may, beyond all others, be regarded as the Caucasian patriarch ; so that if compelled to admit the unity of the type, we should, without hesitation, say here is the root. Without a break, the Semite stretches away into the deserts of Arabia, and, we may say, the wilds of Africa. If not absolutely at home on the Euphrates and the Tigris, he was, at least, on the border-land ; and his aboriginal rivals here, we suspect, were not Aryans, whether from the East or West, but Turanians from the North. These, we know, are very heretical opinions, and we should not venture to entertain them save on the apparent authority of facts, that seem to compel a dissent from established anthropological, or rather, philological opinion on this subject.

This comparatively isolated and alien position of the eastern Aryans,

not surrounded by nations gradually shading off in language and structure towards other and ruder types, but sharply divided by lingual and typal demarcations, amounting to decided contrast from all their neighbours, is a fact that has never been duly pondered by the advocates of their Oriental origin. And not only is the area which they occupy thus isolated, it is also limited in extent; thus affording additional evidence that the presence of the Aryan in Asia is exceptional. While, in combination with this, is the very important and highly suggestive fact, that the languages of the eastern Aryans are all *essentially* of one, and even *nominally*, but of two families; namely, the Indic and Iranic, whose subdivision is almost a matter of history. Now, in contrast with this, we have the western Aryans occupying almost the entire expanse of Europe, as if it were their own proper territory, their true ethnic area,—a conclusion confirmed by their manifold lingual divisions and subdivisions, indicative of the fact that they had here both time and opportunity, not only for geographical expansion, but also diversity of development. From the Celtic to the Teutonic, from the Italic and Hellenic to the Wendic, we have a lingual range to which the Aryan peoples of Asia can furnish nothing parallel,—Sanskrit and Zend, with their derivatives, being little other than the counterparts of the Hellenic and Italic, with theirs.

And if we do not gravely err, physical anthropology confirms this view of Europe, rather than Asia, being the native habitat,—the aboriginal seat of the Aryan. It may now be regarded as an established principle in anthropological investigations, that every race thrives best, and attains to its highest and most vigorous type, mental and physical, on its own proper area, there being always something of the weakness of a foreigner and exotic in an immigrant population. Now, we suppose it is almost unnecessary to say that, physically, the Aryan of Europe is, and—to the remotest verge of history—always has been, the perfection of his type, whether we regard strength, stature, beauty, or longevity. While contemplated morally and intellectually, it is on this area that he has built up his greatest and most enduring empires,—it is here that he has attained to his highest and most diversified phases of civilisation; and it is here alone that, after the lapse of so many centuries of supposed colonial residence, he manifests that unexhausted vigour both of body and mind, which renders him, whether as conqueror and colonist, or as guide and example, the hope of the world. Now, what has the eastern Aryan to show in the way of parallel or rivalry to this? As the conqueror of India, he is hopelessly *effete*; as a Persian, he is comparatively weak and demoralised, existing upon the sufferance of Russia, and not yet

quite free from the shadow of old Tartarean subjugation. In truth, it is only as a Kurd and an Affghan—where his mountain altitudes enable him to enjoy a European temperature, and breathe an atmosphere almost as invigorating as that of the peninsular West—that he has preserved either the physical or mental vigour, the courage or the enterprise, of his European ancestors and congeners, and even of these two divisions we have yet to learn how far the former is free from Turanian, and the latter from Semitic, admixture.

But perhaps it will be said that this argument proves too much; for if it be worth anything, it will equally tend to show that the Semites are also aliens in Asia, and thus leave this vast continent as the appanage proper of the Turanians only. And if by Asia be meant only that part of the Old World which lies east of the Uralian mountains, the Caspian sea, the great valley of Mesopotamia, and the Persian Gulf, there is, perhaps, a certain measure of truth in this assertion. But if we include western Asia and Arabia, the supposed parallel between the eastern Aryans and the Semites no longer holds good; for some of the greatest empires of the latter, from the Assyrian to the Saracenic, were on this area, which, moreover, as the source of the faith of Islam, is still the seat of a *quasi* theological supremacy. It was also on this area that Judaism flourished and Christianity originated; and here, also, that the world-renowned commerce of Tyre and Sidon was developed. No doubt, Egypt and Carthage may be readily quoted as illustrious instances of extra-Asian Semitic power and culture. But not to mention the obviously Asian character of the former, and the known fact that the latter was but a colonial settlement of Phœnician enterprise, it can never be said of these two states that they and their people were to Africa what the Aryans are to Europe; for the especially African man is not the Caucasian Moor to the north, but the Negro to the south of the Sahara. While admitting, then, that the Semite occupies but a comparatively insignificant section of the geographical area of Asia, and that numerically he was, even at his maximum, vastly inferior to the Turanian; we must yet assert that, as an Asian man, he occupies a very superior position to the Aryan, and one, we may add, far more clearly indicative of an aboriginal connexion with the eastern continent.

Not that we are at all disposed to despise or underestimate the African Semite, who, as an Egyptian, seems to have led the way to monumental civilisation; and as a Carthaginian, proved a not unworthy rival of the most imperial type of the European Aryan yet developed. But in both instances, this development of civilisation and power on an African area was so exceptional, whether as regards historic antecedents or geographical surroundings, that in neither case

can it be regarded as an analogue of the great eastern empires, or of the intellectual culture and political power of either classic or modern Europe. Northern Africa, indeed, although beyond all question an integral portion of the Semitic area, and, in a certain sense, the remote root-ground of the race, where its rudest, most muscular, and most osseous types are still found, is yet apparently by no means favourable to a high development of civilisation, independently of extraneous aid. The Moor, the Berber, and the Tuarick, are still at the barbarian stage, despite Egyptian learning and Carthaginian trade, and notwithstanding the proximity of Asiatic, and the example of European civilisation, and the consequent influence and training, to which immediately or remotely, they have been so long subjected. This is assuredly adequate proof that they have no native aptitude for refined culture, and do not occupy the highest portion of their own ethnic area, which must consequently be placed in Asia, and even on the most liberal interpretation, may be said to extend from the Nile to the Euphrates, rather than from the former to the Pillars of Hercules. We have entered into this somewhat wearisome statement of facts, and rather lengthened exposition of the argument, because it is of some importance to anthropological science that the great question should be settled, whether the Semite is to be regarded as preeminently the Asian type of the Caucasian man, or whether he is to share this in common with his Aryan rival?

But there is another and perhaps a broader view of the relation of the Semite to the Aryan, to which allusion has been already made ; that which contemplates the former as the Caucasian man of the south, the flower of a Negroid root ; and the latter as the Caucasian man of the north, equally the flower of a Turanian root. But even thus contemplated, it must be admitted that the especial seat of the Aryan is in the north-west, and not in the south-east. While in connexion with, and corroborative of this, it is observable that the more salient features of his character, his ethnic specialities, attain to their maximum of development and manifestation only on an European area.

As a conclusion to this branch of the subject, it may not, perhaps, be altogether amiss to observe, that as history repeats itself, on the principle of the cycle and epicycle, so at the present moment we see Russia advancing through the Caucasus, on the west, and through Bockhara, on the east of the Caspian, towards the area of the Iranic and Indic immigrations of former ages ; thus renewing that movement which formerly carried the Lettic dialect of the primitive Aryan tongue to the neighbourhood of Balk, where, as well as on the plains of Iran, a Slavonic conqueror will again plant his victorious standards, unless repulsed by the courage and policy of the British Celt, already

in possession of the partially Aryanised area of aboriginally Turanian India.

Leaving now the great questions of Aryan origin and area, let us return to the Semites. This great family has been subdivided into three branches,—the Amharic, or southern; the Aramaic, or northern; and the Hebraic, or central. The first embraces the Arabs proper, the Moors, Berbers, Tuaricks, Ancient Egyptians, Nubians, and Abyssinians. This is apparently the purest and, perhaps we may add, the most nearly primitive type of the race. The principal admixture here is from Negroid sources south of the Sahara. The second embraces the Syrians, Assyrians, and Chaldeans, and may be defined as the especially imperial type of the race. The principal interaction here has been with the Iranic branch of the eastern Aryans; although, judging by the physical type of the two last, we should also suspect the presence of a Turanian element, probably as the underlying basis of the population, derived from the Tatar aborigines of this border-land of the true Semitic area. The contest for political supremacy between the Aramaic Semites and their Iranian rivals, constitutes the history of western Asia for a thousand years. The third branch embraces the Jews, Phœnicians, and Carthaginians, together with the colonial extensions of the two latter. The principal interaction here has been with the Hellenic and Italic branches of the classic stock. As the Amharic branch is the most nearly related to the Negroid type; so this central and Hebraic branch is the most closely allied to the Aryan family. Indeed, both the Jew and Phœnician have so many European characteristics, and have maintained so many and such diversified European relations, that we are quite justified in suspecting a large admixture of European elements in their constitution. Was not Palestine, indeed, as a part of the Mediterranean coast of western Asia, simply an extension of Ionia? and were not the Phœnicians, though thoroughly Hebraic in language, yet largely imbued with the ideas, and prone to the maritime and commercial habits, of their Greek neighbours. It is doubtful if we have yet realised our full indebtedness to this vigorous section of the Semitic peoples. In a sense, it may be said that Europe owes her trade to the Phœnicians, and her religion to the Jews; so that their influence is second, if second, only to that of the Greeks and Romans.

From this bare enumeration of Semitic nations it must be at once obvious that we have here to do with a great race, who have played a very important part in history, and in various ways stamped their impress indelibly on humanity. Such a type must then be worthy of the profoundest study, although the especial cycle of their greatness is passed, having waned, at least for the present, before the increasing

splendour of Aryan power and civilisation. Such a race cannot be despised or ignored. Anthropology must endeavour to understand and define them. What is their relative age as compared with that of the Aryans? When did their interaction with the latter commence, and what are the indications of its continuance or renewal? What is a Semite? What place does he hold in the scale of being? What has he done for the religion, literature, art, and science of the world? What was his essential character and vocation in the past, and what intellectual, political, and commercial position will he probably hold; in other words, what services will he render to civilisation in the future? These are rather searching questions, and yet Anthropology can scarcely be regarded as a science unless we are prepared with something like a definitive reply to most of them. It must be at once obvious that in any such investigation as that here proposed, we must advance cautiously, yet daringly, from the boundaries of recognised knowledge into the region of speculation, where certainty will have to be exchanged for uncertainty, and where the utmost we can yet hope to accomplish is but to throw out a few suggestions, not so much for the guidance as the consideration of others.

As to the relative age of the Semite, if there be any truth in the idea that he is the flower of the Negroid type, the ethnic culmination of the man of the south, the cultured representative of the oldest and most nearly rudimentary phase of humanity, then we have from this circumstance alone some ground for regarding him as the elder branch of the Caucasian family. The fact that he was the founder of the earliest historic empires, and that his great cycle of now monumental civilisation on the Egypto-Assyrian area, preceded the historic Aryan cycle of Iranie and classic development, is also partially corroborative of his ethnic seniority. Do his organic specialities throw any light on this subject? Is there anything in his structure to indicate the relative maturity or immaturity of his type? What says anatomy to the proportions of the skeleton, the disposition of the muscles, the arrangement of the viscera, and the convolutions of the brain? What says physiology to the functional vigour of cerebration, respiration, alimentation, and reproduction in the Semite as compared with the Aryan, and yet more remotely, with the Negro and the Turanian? Alas, it is only necessary to ask such questions to discover how limited is our knowledge, how inadequate are our data for the solution of any of the great race problems still under discussion!

When did the interaction between the Aryan and Semitic peoples, which constitutes the staple of all history, commence? Is there anything in monumental remains or racial type calculated to throw any light on this subject? What, for example, was Egypt? Was the

civilisation of this great country the pure product of Semitic vigour and intelligence? Has not historic Egypt been constantly subjected to reaction from without? Persian, Greek, Roman, Mameluke, and Turk present us with a rather extensive cycle of alien invasion, both from Aryan and Turanian sources. Was there nothing akin to this in prehistoric times? Will the principle of the cycle and the epicycle warrant such a conclusion? Do the monuments of Egypt themselves sustain it? Is there not much here to indicate that Egypt was a colonial extension from some previously civilised centre? The builders of the pyramids, more especially the great pyramid, must have been architects of no mean experience. Is not the architecture of Egypt a development of the Cyclopean, whose centre was Greece and Italy, as the latter was, perhaps, an advance upon the Dolmen or so-called Druidic style of Western Europe? Have we yet the data requisite for even an approximative solution of the problem involved in the relation of Cyclopean to prehistoric Mediterranean civilisation generally, and until this has been settled, what are all our speculations about the beginnings of Egyptian civilisation but vague surmises, utterly devoid of all claim to be regarded as of a genuinely scientific character.

Perhaps, however, the best evidence that the elements of Egyptian civilisation were imported, and this too from a higher, if not alien race, is to be found in the rigid formality and traditional immutability of religion, law, art, and manners in the land of Misraim. Nowhere else has spontaneity been so completely eliminated from the life of a people. Precedent and example were supreme, and authority so crushed individuality, that from the palace to the cottage the system was everything and the man was nothing; adequate proof that here was a nation of pupils whose teachers had departed, and who felt that their only safety consisted in strict and unquestioning obedience to the behests of a past too exalted for the rivalry of the present.

It is doubtful if we yet understand the profounder spirit of monumental civilisation. What grandeur, yet what simplicity of thought, is reflected in the walls of Tiryns, the pyramids of Memphis, and the temples of Thebes. Have we fully realised the cast of mind that produced the Ramesseion,—or, for that matter, the Parthenon or York Minster? Is not the architecture of a time the reflection of its thought, and, if so, have we yet interpreted Nilotc culture by this record? In it the sublimity of mass, the element of strength as contradistinguished from beauty, culminated. Its ruins seem like the remains of another world, and in a sense, perhaps, they are so, the African, as an area distinct from that of Europe or Asia. There is nothing composite in the Egyptian style. We see at a glance that the elements of thought had not been broken up and recomposed in the

soul of its builders, whose ideas were few and simple, but of stupendous vastitude. Such men do not exist now. They belonged to the primeval generations, to the primary strata of civilisation, and have left no successors.

But is not the term "monumental," as applied to the cycle of Semitic civilisation, relative rather than absolute? With the exception of the Hebrew records, it is no doubt monumental to us, but was it so to cotemporaries? Was there not an Egyptian, Phoenician, Assyrian, and Chaldean literature of great antiquity and of considerable historic interest? Manetho, Sanchoniathon, and Berosus are, no doubt, somewhat mythical when compared with Herodotus; but do not even such confused and fragmentary echoes indicate that there once were real voices to set them in motion? We hear many Iō peans over the discovery of Sanscrit literature, and perhaps to us as Aryans, and for philological purposes generally, this recovery of the oldest existing form of our early mother tongue, is the most important of all possible events in the science of language. But historically, and perhaps we may add, morally, who shall estimate what we have lost by the destruction of that preclassic literature, and with it of those forms of thought which reflected the inner life of the stately dwellers on the Nile and Euphrates? Wanting this, must not our psychological record of humanity, ever remain imperfect? If we so value what was said at Athens and Rome, may we not be permitted to regret the eclipse which has shrouded in everlasting night the intellectual light of Thebes and Memphis, of Babylon and Nineveh, more especially when we consider the significance and power of the fragments that remain to us of the racially allied and cotemporary people of Jerusalem? But merely classical scholars cannot understand this, and orthodox Hebrew scholars will not, so the summation of our loss in this respect must remain as a labour for the future.

We would then (of course quite hypothetically) define Egyptian civilisation as the result of Asian and European immigration on an African area, whence, by the specialities of soil and climate, the alien blood was ultimately eliminated, leaving traditional Semitic and Aryan influences to operate on an aboriginal population, fundamentally identical with that of the modern Fellahs, but with this difference, that whereas the latter now simply represent the rustic and artisan classes, the ancient Egyptians were an effectually developed national type, with its full hierarchy of sacerdotal, aristocratic, and professional classes in normal relation to each other, and to the state as a collective organism. And, if asked to account for the speciality of the Egyptian type of mind, for judging by their works, they must have been a people almost unique, even from the remotest antiquity, we would

point to their geographical isolation, shut in by the sea and the desert, in virtue of which they were enabled to develop and emphasise their formalistic proclivities to the uttermost, comparatively undisturbed by foreign invasion. This was apparently a characteristic of primeval nations generally, among whom events moved slowly; but it was especially so with the Egyptians, and hence their rigidly exclusive nationality of thought and feeling, and the striking peculiarities of architecture in which the weird spirit of their inner life became at last tangibly embodied.

It is, perhaps, rather more difficult to estimate the reaction of Egypt upon other countries. Her wisdom was proverbial among all the great nations of antiquity. But, whatever else she may have taught them, she did not give them her architecture, and therefore we may presume, scarcely the ideas of which it was the symbol. Her nationality was too intense, too strikingly characterised, for ready transference. It implied a certain speciality of organic structure, that of the lower Nilotic area, reinforced by millenniums of training, for its effectual development. India and China approximate to, but do not equal her in speciality; they do so from their similar geographical isolation. Notwithstanding all this, however, ancient, like classic Egypt, was a great school. Judaism bears her stamp in every lineament. It was scarcely necessary to inform us that the great law-giver of the Jews "was learned in all the wisdom of the Egyptians." The Mosaic code is simply the Egyptian system of law and ceremonial adapted to the requirements of Hebraic Semites, and engrafted on the doctrinal peculiarities of patriarchal theology.

It is somewhat more difficult to define the character and extent of the influence exercised by Egypt on the moral and intellectual development of the Greeks. Tradition implies prehistoric interaction, probably during the Cyclopean era, and this seems to have continued down to the Homeric age; while Pythagoras and Plato both confessed their indebtedness to Nilotic teachers. As the more immediate channel through which Asian theosophy and Oriental mysticism impinged on the classic world of Greece and Rome, the influence of Egypt was also manifested at a later day in the production of such men as Plotinus, Proclus, and Jamblichus, the Neoplatonic and Thaumaturgic schools of declining heathenism being, indeed, very largely of her fostering. Even thus contemplated, Egypt must be regarded as a nationality of no mean significance in the ancient world. The parent of Jewish law and ceremonial, and the nurse of Greek philosophy, under her native sovereigns, she became under the Ptolemies, the seat of a school of mathematics and physics, whose influence on the progress of science is still appreciable. While at Alexandria, more especially, were elabor-

ated those specialities of doctrine, consisting in a union of Greek philosophy with Judaic theology, that under the zealous apostleship of the Nazarenes, eventuated in the establishment of Christianity. Thus from the dawn of monumental civilisation to the fall of the Roman empire, Egypt was a power in the world of thought. Such then was the position of this elder branch of the Amharic portion of the great Semitic family. Such was the place of Egypt in the scale of nations—not to be forgotten while history continues to be written.

And what were the Mesopotamian empires of Nineveh and Babylon? And we reply the result of Semitic expansion on a Turanian border, where the immigrant population were, moreover, subjected from an early period to Iranian influences, beneath which, in a political sense at least, they ultimately succumbed. What manner of men, then, were these Assyrians, that “nation of a fierce countenance,” the imperial masters of Western Asia? And we reply Semitic conquerors with an element of muscularity from their Turanian subjects, and of intellectuality from their Aryan neighbours. Physically, and perhaps mentally, they were the strongest and most massive of all the Semitic types, the Romans of the East; pre-eminently the warriors and rulers of their race. In them Semitism, at its first or monumental cycle, culminated politically. They held Asia with the strong hand, almost from the Mediterranean to the Indus, and hence loom out at the remote dawn of the historic period, with mysterious grandeur as the great founders of that imperial system, which, in its successive phases, constituted such an important feature in ancient civilisation.

Morally, however, Assyria is more remote than Egypt. We know more of the dwellers on the Nile than the Tigris or the Euphrates. The citizens of Thebes and Memphis probably differed more than those of Nineveh and Babylon from the present inhabitants of London and Paris, but we know better in what that difference consisted. We can realise Egyptian more distinctly than Assyrian life, perhaps in virtue of the greater number and variety of archaeological data which it has bequeathed to us, and in part also from the influence which, through Hebraic and Hellenic media, it still exercises over the life of to-day.

What were those early empires that constitute the beginnings of history? Were they in reality the first great political agglomerations of humanity? Because, if so, we must accord to the Semites the palm of precedence, at least over the Aryans, if not the Turanians. China may, perhaps, lay claim to an antiquity equal to that of Assyria, if not Egypt, but Persia, Greece, and Rome were, as we know, her juniors and successors. Here, again, we are brought back to a reconsideration of the great problem of the true Aryan area, and with it, of the possibility of a prehistoric movement of civilisation from the north-

west to the south-east. Was there not a cycle of Celtic power and civilisation in Western Europe, and a yet more advanced Cyclopean cycle in Southern Europe, of which history makes no mention, and whereof even the tradition has waxed faint, and which, from the character of their architectural and other remains, must have preceded the era of monumental civilisation ? Alas, how short is the plumbline of our historic knowledge, how lamentably inadequate for fathoming such depths as those over which we are now sailing ! Would it be too much to say in this connection, that there have been three great cycles of imperial power ; the Aryan, extending from the Iranic to the Roman empire, which may be termed historic ; the Semitic, extending from the Egyptian to the Babylonian, and known as monumental ; and lastly, the premonumental or archeological cycle, embracing the Celtic and Cyclopean remains of Europe, and, perhaps, the earth-mounds of American and Turanian Asia ?

It will, of course, be understood that in these remarks we use the term "empire" in its widest signification. Strictly speaking, the Roman is the only empire upon record. The great Persian monarchy was but an aggregation of Satrapies, while the Assyrian was merely an array of dependent kingdoms. The primitive Oriental idea of empire was simply a great system of military supremacy on the part of one people, and of tributary subordination on that of others, and of this Assyria was apparently a perfect realisation. Of a central executive, exercising, directly or by delegation, administrative functions in every province, of even approximative uniformity in language, laws, and institutions, the men of the monumental era had not the slightest conception. This, like the idea of a universal faith, was the product of a later time, when humanity collectively, had attained to a larger growth of thought and a riper maturity of intellect.

Of these Aramaic Semites, the Chaldeans were apparently the more intellectual branch. The Magi of Babylon were second, if second, only to those of Egypt, in reputation for wisdom and knowledge. And it is observable that this knowledge, as in the case of the Egyptians, ever tended to assume a mystic and *quasi* thaumaturgic character. In such minds astronomy is simply the basis for astrology, while chemistry assumes the guise of alchemy, and science generally tends to the study of occult processes and the production of magical results. Were these specially Semitic, or merely primæval characteristics ? Their reappearance in almost more than pristine force among the Saracens, notwithstanding the intervening period of Greek culture, is certainly an indication of some deeply seated tendency to the mystic and occult in the Semitic mind, although the nearly parallel condition of the European Aryans, during the middle ages,

should render us charitable in the interpretation of such proclivities, as being perhaps the result of ignorance rather than racial tendency. If, however, we institute a comparison between the culminating periods of Semitic and Aryan culture, and endeavour to analyse their respective characteristics, it will become at once obvious that, under the former, there was a manifest tendency to theosophy and magic, and under the latter, to philosophy and science. Thus, for example, compare the ancient Egyptians with the Hindoos, the Babylonians with the Greeks, or the Saracens with the people of modern Europe, and it will be at once seen that the former have an element of mysticism in their nature largely wanting in the latter. And this contrast becomes yet more striking when the two older peoples are excluded, and the comparison is confined, so far as Aryans are concerned, to those on their proper, that is European, area.

This diversity is what might be expected from the fact that the Semites are the moral and the Aryans the intellectual division of the Caucasian type. This Semitic speciality, however, did not culminate in either the Amharic or Aramaic branch of the race, but in the middle or Hebraic, where the especially commingling element was neither Negroid, as among the Egyptians, nor Turanian, as among the Assyrians, but either Iranic from the east or Hellenic from the west, and in either case of purely high-caste Aryan lineage. Does this help to explain the exalted moral position and vocation of the Jews, in virtue of which they are theologically the representative men of their family, not only in possession of an exalted monotheism themselves, but also the acknowledged source whence it was borrowed by Christians on the one hand, and Mohammedans on the other? And are they not in this respect somewhat analogous to the Celts of Western Europe, who in a similar manner, and from circumstances also arising out of geographical position, have been largely protected from invasion by non-Caucasian immigrants, and so have been enabled to retain a finer temperament and higher type than those less fortunately situated? Does not this specially Aryan admixture, which had probably a prehistoric as well as a historic cycle, also help to explain the partially European character of the Jews and Phœnicians, who as being, in a maritime sense at least, on the border land of the true Aryan area, inevitably partook more or less of its expansive influences both morally and ethnically?

To return, however, to the Aramaic Semites. In them the first or monumental cycle of Semitic imperialism, culminated and closed; giving place to the Iranic, itself to be succeeded by the Hellenic, and this, in turn, to be superseded by the Roman, constituting collectively the historic or Aryan cycle of imperial development. Do historians understand these great racial revolutions? Have they, for the most

part, even the remotest conception of their existence? Occupied with the details and minutiae attending the rise or fall of the waters in their own small inlet, they altogether neglect or ignore the great tidal movement of the ocean beyond, whereof their ebb and flow is but an insignificant and fractional portion—not to be understood moreover in its remoter causes and effects, unless thoroughly comprehended as but part of a larger whole. Has it not been said that history must be rewritten, and must we not here re-echo the assertion from the anthropological standpoint?

We have already alluded to the probability of prehistoric cycles of Aryan power in the west; are we to consider the Persian as the first in the east? What say the conquest of Northern India and the settlement of the Aryans on the plains of Iran, to any such hypothesis? Were not these the effects of conquest and colonisation, implying military power and resources, together with a general political supremacy, virtually imperial? Perhaps, however, this fact of the Aryan settlement of Iran may be disputed. But what say the Zendic litanies in the Avesta? Are they not, as we have already remarked, exactly akin to those of the early Aryans in India, namely, the almost agonised supplications of high caste immigrants, surrounded on every hand by rude Turanian aborigines, from whose secret machinations and open hostility they pray to be delivered? The Zendic remains of Iran, like the Vedic literature of India, is clearly demonstrative of the fact that, in both regions, the Aryans were invaders, not surrounded simply by a hostile population, but by a people radically diverse in language, institutions, and personal appearance, and with whom, in a sense, there could be no peace—save that of the grave.

And why, it may here be asked, did the Iranic rather than the Indic division of the Eastern Aryans emerge into imperial power? and we reply, because of their comparative proximity to their proper ethnic area, and, perhaps, in part, from the fact that the Turanian aborigines of Iran were apparently nomads, while those of India were cultivators, in virtue of which the Iranic immigrants did not remain as simply a sacerdotal and military caste, but became, to a large extent, the virtual inhabitants of the land. And this brings us to that important problem, the geographical limits of the Aryan area proper, involving the limits of ethnic areas generally. Are these unalterably fixed, or susceptible of gradual expansion on the part of higher types, of course at the expense of lower, during what may be called geologic time, and in accordance with the slow change of telluric and other determining influences of racial type? As a fact, for example, have we not seen an extension of the Aryan area in Scandinavia, at the expense of the Turanian, during the historic period. And are there not indi-

cations that a similar but prehistoric extension took place in Spain, where the Iberic gradually yielded to the Celtic element—unless, indeed, we reverse the conditions of the problem, and regard the former as a colonial invasion from Africa on the true area of the latter? But what are the facts, historical, traditional, and archæological, respecting the eastern border of the Aryan area? And we may say that the first are *nil*, the second vague, and the third unknown. In this insufficiency of reliable data we are thrown back on speculation, and may say as a probability, that the mountains of Kurdistan were the prehistoric Eastern border of the Aryan type, prior to that great colonial extension, which eventuated in the formation of the Iranic and Indic areas of historic time.

And what are the eastern Aryans? In what do they differ from those of Europe, and how are they related to them? Although beyond question Aryans in lineage and language, and endowed moreover with all the predominant intellectuality of their type, they have nevertheless a certain Orientalism of thought and feeling not found in their kinsmen of the West. Do they owe this to an infusion of blood, perhaps from their Semitic neighbours; or is it due solely to the moral influence of Asian residence, accumulated through successive generations? Lingually, they are, perhaps, most nearly allied to the Lettic branch of the European family, while in type they approach the classic or even the Teutonic peoples, so that any decision on this point would be rather premature. Philology demonstrates that their separation from us—or our separation from them, as the case may be,—must have occurred at a comparatively early period of our common lingual development, and with this we must for the present be satisfied.

Was the rise of Persian on the ruins of Babylonian power a merely local incident, a national event, or the turn of a racial tide, that gave the Aryan supremacy over the Semite for fully a thousand years, and with the exception of the Caliphate and the earlier years of Turcoman and Osmanli conquest, we may say, to the present hour? The course of events indicates that it was the beginning of an ethnic tide, still on the flood, despite Carthaginian and Saracenic eddies of very respectable magnitude and considerable duration. This movement of civilisation and power westwards was, no doubt, aided by the tendency of an Aryan cycle of supremacy to seek effective development on its own appropriate area. Thus contemplated, the eventual rise of Greek on the ruins of Persian power was an inevitability, which in the process of effectuation assumed the form of Philip's preparations and Alexander's conquests.

The march of a Greek army from the Bosphorus to the Indus was an event whose effects are still apparent. The faith of the cross

occupies the western, and that of the crescent the eastern portion of the great area of classic power. Regarded from the mundane standpoint, Hellenic and Italic civilisation constituted but the bipolar aspect of one system, the epicycle of the Cyclopean, occupying the same site, and employing perhaps, ethnically speaking, the same people. The speciality of the Greeks was their purely Aryan type of character. They show us the European prior to his moral baptism by Semitic theology. The masterminds of time in literature and art, their religion was a speculative philosophy to the few and a profligate polytheism to the many; a people whom, from the theoretical Christian standpoint, we may, perhaps, regard, much as the Semitised Orientals affect to regard us, namely, as a people no less admirable for their talents than pitiable for their morals. Not that in this latter respect London or Paris need throw any stones at Athens, or even Corinth—which every man could not afford to visit!

The Greek, as we have said, is the representative Aryan, regarded intellectually, as the Jew is equally the representative Semite, contemplated theologically, it was, therefore, quite proper that in the further interaction of these races, they should especially combine for the evolution of a new and more expansive phase of religious development. And here we are brought in view of one of the gravest problems in historic anthropology, namely, the monotheism of the Semite, whereof the Hebrews are regarded as the original exponents, and the Arabs, in their capacity as Mohammedan conquerors, the principal Apostles. If this be a generically Semitic speciality, why were the Egyptians, Assyrians, and Babylonians such determined polytheists? Perhaps, because of a Negroid intermixture in the one case, and an underlying Turanian element in the other. Granting that originally, it was simply a Hebrew characteristic, how is it that the Phoenicians and their descendants, the Carthaginians, were such persistent idolators? Nay, were not the Jews themselves constantly prone to the sin of idolatry, till after their return from the captivity, that is, in reality, till after their contact with the Zoroastrian fireworshippers of Iran, the earliest iconoclasts upon record, and who, under Cambyses, gave the Egyptians a foretaste of what other idolatrous nations afterwards experienced at the hands of Mussulman invaders, in a later age? Where, then, are we look for the root of monotheism? How did it become a Hebrew speciality? and why is it now regarded as a Semitic characteristic? Here, too, as in so many other departments of anthropology, we want "more light."

It is in the Romans, however, that we see the truly imperial division of the classic peoples, and accordingly on them devolved the final conflict with Semitic imperialism at its first cycle. The rise of

Carthage, and its place in the world's history, have been but imperfectly understood. Sharing in the unfortunate destiny of all its congeners, except the Jews, its written records have utterly perished ; and though contemporary with the most brilliant historic nations of antiquity, it belongs, by race and fate, to the previous cycle of monumental civilisation, of which it was, in truth, the continuation and termination. Of Hebrew lineage, and more immediately of Phœnician descent, the Carthaginians were not altogether aliens, even in northern Africa. The muscular Moor and the wiry Tuarick were their remote kinsmen ; while even Egyptians and Abyssinians were only another branch of the same great Semitic family with themselves.

What was the ethnic relation of the Phœnicians to the Ionian Greeks? Judging by cameos, coins, etc., were not Hannibal and other Carthaginian commanders as purely Hellenic in type as the best bred gentlemen of Attica ? Was it from a Greek or an Arabian source that the Tyrians and Sidonians obtained their manufacturing industry and their maritime enterprise ? We have already in part replied to this, by saying that the Hebrews owe their distinctive specialities to the fact that they are the Aryansed branch of the Semitic family, and so favourably contradistinguished from either their Amharic or Aramaic kinsmen, in whose blood a Negroid or Turanian taint is clearly perceptible. But let it be distinctly understood that this is speculation, not fact,—a suggestion based on probabilities, not a conclusion derived from reliable data.

Was the rise of Carthaginian power a part of the general march of civilisation westwards, the response of the Semitic man of the south to the vigorous development of the Aryan man of the north, the one on an African, and the other on a European area, with the Mediterranean, its islands and coasts, as the debateable border between them ? And what are the indications afforded by Egypt and Carthage as to the capabilities of northern Africa as an ethnic area ? Obviously that it is the colonial appanage of Asia rather than Europe ; and that its next cycle of civilisation and power can, at the earliest, only be coincident with, or consequent upon, the resurrection of the former. Be this, however, as it may, the past of Egypt and Mauritania is adequate indication of an illustrious future, whether under European or Asian leadership, when the inherent and indestructible physical manhood of the Moor, like that of the Teuton, will tell with considerable force upon at least the political destinies of the world.

Whether the Aryan or the Semite be inherently and essentially the nobler and the stronger man, the contest between the Roman and Carthaginian could have but one termination. The former was on his own area, and represented the Aryan cycle approaching its meri-

dian of power and splendour. The latter was a colonist, the last surviving remnant of that mighty but departed family of Semitic nations, who, as Egyptians, Assyrians, Babylonians, and Phœnicians, had once loomed out so grandly upon the ancient world, but whose power had waned, and whose glory was dimmed, when their far-off daughter entered upon her internecine conflict with the sternest and most imperial type of the Aryan yet developed. Rome was young, at the maximum of her republican vigour, with all the splendour of her imperial destiny yet before her; while Carthage was old, not merely by individual senility, but as the heiress of that monumental civilisation, whose cruel and degrading superstitions were an anachronism in the presence of Greek culture and Roman law.

Semitic civilisation is not yet understood. Historians have not grasped the idea of a great system of life and thought, stamped throughout with a definitive racial impress, extending geographically from the Euphrates to the Pillars of Hercules, and chronologically, from the earliest of the Egyptian dynasties till the Roman plough passed over the last remnants of Carthaginian greatness. What is the sum of the influence exercised by this vast cycle? To what extent has it aided the progress of civilisation, and how far are we still its debtors? It reared several great empires, and built many mighty cities; but the power of the first and the splendour of the last have alike crumbled into ruin. Memphis and Thebes, Nineveh and Babylon, Tyre and Sidon, and Carthage, where are they? Even the Jew is in exile; and Jerusalem, the sacred city of Melchisedec, and the capital of David and Solomon, sits desolate, as a widow, among the nations, "trodden under foot of the Gentiles." No such ruin has overtaken the Aryan peoples. The language of the Vedas is studied; and the institutes of Menu are maintained from the Indus to the Ganges. The Persians are still a nation. The Greeks are undergoing a resurrection; and although, strictly speaking, there are no Romans, we have Italians, with a past of intellectual glory, and a future of political promise. Is this difference of destiny due to any racial speciality? Is the Semite an anachronism, or has he merely succumbed to the temporary predominance of the Aryan? As the developed type of a Negroid root, is his day of power and predominance permanently gone, or will he, phœnix-like, arise in youth, and strength, and beauty, from the ashes of the past?

To this, the spread of Mohammedanism and the rise of the Saracen power of the Caliphs is, in some measure, a response. Here, for the first time in history, the Semite, pure and simple, or as nearly so as he anywhere exists, came to the front, and, as prophet and warrior, gave laws for some centuries to a considerable portion of the

civilised world,—unhappily, with the result of his monumental predecessors, of more mingled lineage,—desolation. The special character of Mohammedanism, and the causes of its rise and diffusion, are easily understood, and may be succinctly stated. Classic civilisation had raised southern Europe and western Asia above the level of ancient heathenism. The practical result of this was the development and diffusion of Christianity. But this faith, especially under the Greek and Roman churches, became so thoroughly Aryanised in doctrine and ritual, as to be no longer adapted to a Semitic population, more especially when that population had been subjected for some centuries to Judaic influences. Hence reaction became inevitable, and this assumed the form of the faith of Islam, which is simply monotheistic Judaism stripped of its sacrificial ceremonial. Fundamentally and essentially it is the same movement as Christianity, only it is that movement adapted to a Semitic in place of an Aryan people.

What, then, are the Arabs, who were the prime movers and chief actors in the great drama of Mohammedanism? and we reply, Semites of the purest blood, and on their highest ethnic area. Less persistent and industrious than the Egyptians,—less massive and imperial than the Assyrians, and less refined and intellectual than the Hebrews, they suffice to show us how much the great Semitic peoples of antiquity were indebted to alien elements for the place which they occupy in the pages of history. Intense, fervid, devout, and bigoted, a man of one idea, but holding that idea with the tenacity, and propagating it with the fervour, of a prophet, the Mussulman Arab was a true Abdallah, a sword of God, going forth to the conversion or the slaughter of the infidel. Dolichocephalic, with a preponderating coronal development, and of eminently nervo-fibrous temperament, with all the vigour and elasticity, mental and physical, which usually characterise this type, he was and is exactly fitted for a mundane raid on more civilised peoples in the hour of their political collapse and racial effeteness.

Regarded politically, and we may add ethnically, Mohammedan conquest was the reply of the man of the south to Turanian invasion from the north. Neither would have been possible during the vigour of either Iranic or classic civilisation. Both were barbarian inroads, whereof, however, the Turanian was the rudest; and so when, as was inevitable, they coalesced, it assumed the stamp of the faith of Islam, and once more raised the standard of the Crescent as it was falling from the nerveless grasp of the exhausted Saracen. This reveals to us the essential character of Mohammedan faith and of Saracenic power. Both were the product of reaction during that period of

collapse which divides the decline of classic from the rise of modern civilisation. They were never in the true van of humanity,—never in the right line of progress ; hence, they have ended in failure and desolation, leaving no bequest of any moment to posterity.

Contemplated theologically, however, Mohammedanism holds a distinguished place in the great scheme of human progress, as the most distinctly emphasised proclamation of monotheism of which history bears record. This was its true mission, whereto conquest and imperial supremacy were subordinate instrumentalities. This also decides its relation to Christianity, and shows that it is the positive and masculine phase of that Judaised faith which, in a duplex or bipolar form, has superseded ancient heathenism over the entire area of classic power.

The empire of the Caliphs arose like an exhalation, absorbing not only the Semitic peoples of Asia and Africa, but also the Iranic Aryans, while, at one time, it also seriously threatened those of Europe with ultimate subjugation. The Crusades were the result, renewing the old internecine strife between Aryan and Semite on the grandest scale, and reminding us of those conflicts between the solar and lunar Rajpoots, which apparently constituted so salient a feature in the ancient history of India. The march of Saracenic power was arrested ; and under Togrul Bey and Alp Arslan the Turcoman superseded the Arab as the political leader of the faith of Islam, and, under the dynasty of Othman, so continues to the present hour.

As an index of what the Semite, when fully aroused and under favourable circumstances, can yet accomplish, the rise and diffusion of Mohammedanism is gravely significant. With Egypt and Assyria in ruins, with the Phoenicians and Carthaginians absolutely extinct, and the Jews in exile, the Arab alone sufficed, in a single generation, to restore the Semitic race to the supremacy of western Asia, and the command of northern Africa. Nor did the tidal movement cease till India, on the east, and Spain, on the west, were added to the dominions of the Crescent. A race that could accomplish this, will doubtless yet claim recognition in those far-off ages of the future, when the epicycle of Egyptian and Assyrian greatness, of Phoenician commerce and Jewish influence, shall have arrived, and the world will again behold, not a spasmodic display of convulsive strength, as under the Saracens ; but the steady growth of well-ordered and abiding power, and the effective development of a complex system of civilisation, stamped throughout with the racial impress of a Semitic population, and so manifesting in its religion, literature, and art, the special characteristics of this peculiar type of man. Of this cycle, and its probable place in universal history, it is impossible to judge by the

achievements and position of the caliphate ; it can only be remotely estimated by the place and power of the older Semitic empires during the true era of their racial supremacy.

But much both of time and circumstance must intervene ere the advent of such a period of Semitic resurrection. In "Iran and Turan" we have shown that the Aryan of the West is steadily but irresistibly advancing towards universal empire, of which, morally, he is already in virtual possession. Now, if we have interpreted history aright, this biceltic and oceanic empire must culminate and decline, and its more immediate successor, the epicycle of prehistoric Cyclopean civilisation be also effectually developed, and probably have passed its meridian, ere the future phase of Semitic supremacy can really commence. And here it will, perhaps, be asked, whether we expect its agents to be pure Semites, like the founders of the caliphate and the modern Wahhabees, or a mingled people, like the ancient Egyptians and Assyrians ; and we reply, in all probability a mingled people like the two latter, but with this difference, that the comingling element will consist of a large proportion of Aryan immigrants, and consequently, that the resultant type, thus baptised, will resemble the Hebraic rather than the Amharic or Aramaic branch of the ancient and monumental Semites. We come to this conclusion, on the ground that the Semitic cycle of the future will follow, and be in a sense consequent upon a precycle of Aryan power, during which Asia and northern Africa cannot fail to be extensively colonised from Europe. Thus, not only will the olden sites of Semitic power be largely occupied by Aryan settlers, but there are not wanting several indications that even the Arabian peninsula itself will be subjected—at least along its coasts, if not to some extent through the interior—to this, perhaps, friendly and commercial invasion of western civilisers. In addition to this, the inferior Negroid and Turanian elements have, apparently, in the general progress of humanity, been somewhat curtailed of their former power and dimensions, and thus do not loom out so largely in the probabilities of the future as in the actualities of the past. Let it be distinctly understood, however, that all this is pure speculation, and so, perhaps, strictly speaking, scarcely admissible in a scientific paper ; but where would science have been at the present hour without suggestions and speculations, at the time no better supported and far bolder than the foregoing ?

But it is time that we should hasten to a conclusion. If correct in regarding the Aryan as a cultured phase of the Turanian type, and the Semite, correspondingly, as a cultured phase of the Negroid type, this would be sufficient to decide the superiority, and perhaps ultimate supremacy of the former. We must not, however, ignore the

fact that the Semite is the "representative man" of the moral sentiments, and that these are, after all, the ruling element in human affairs. We should also remember that we are ourselves Aryans, and live, moreover, during the marked predominance of an Aryan cycle, and from both causes are liable to over-estimate the inherent capabilities, and so misapprehend the place of the Aryan in the ethnic scale. It would then, perhaps, be better to regard these two great divisions of humanity as bipolar, and so indestructible, doomed to ever-recurrent though intermittent interaction, moral and physical. This is the indication afforded by their history in the past, and we have no reason to believe that their fortunes in the future will belie it. The forms which this interaction may assume must, of course, depend on the culture of humanity in general, and on that of the rival candidates for power and precedence in particular. The indications are that in the moral sphere,—the Semite will exalt, and the Aryan expand, the collective mind of civilised man. Hitherto this has been accomplished by the former assuming the theological mission; while the latter has undertaken the development of literature, art, and science. Not that this "division of labour" has been rigidly observed; for the Egyptians and Babylonians were apparently by no means devoid of the intellectual element; while in Buddhism we have an instance, and that, too, on the largest scale, of an Aryan faith extensively diffused among inferior races. If we mistake not, the culture of modern Europe is steadily advancing to a somewhat similar manifestation during the approaching period of Celtic predominance; when, as Christianity assumed an artistic phase under classic influences, it will equally assume an intellectual phase in the hands of the most refined, sensitive, and spiritual of all the Aryan types of the West.

We have, in previous papers, referred to the fact of racial baptisms as a recurrent phenomenon in the physical history of man, of which those between Celts and Teutons are an instance in point. Now, have we not reason to believe that those wars, conquests, and revolutions, that world-old and oft-renewed contest for supremacy between Aryan and Semite, at whose more salient features we have glanced in the previous pages, was simply this fact on the grandest scale, and in its most distinctly pronounced aspect, and if so, then in its ultimately most beneficent form. Have not, as already remarked, some of the grandest results yet achieved by man been apparently due, in part, to this interaction? And is it proposable that these are its last or its greatest results? Was classic civilisation the highest possible form of Aryan development? Has not modern Europe, for instance, many moral and intellectual elements of which Greek and Roman life was

either partially or wholly devoid? Granting, then, that the western Aryan is destined, at no very remote period, to conquer and colonise the larger portion of Asia, will he not bring with him social institutions, scientific attainments, and industrial resources, immeasurably superior to anything of the kind in possession of the historic Greeks of the age of Alexander, or those prehistoric Aryans who laid the foundation of the Indic and Iranic civilisation of an earlier time? And conversely, is not Mohammedan Asia in a much higher religious condition than idolatrous Egypt, Assyria, and Arabia, at any period, near or remote, prior to the diffusion of the faith of Islam. Practically, as a result of these higher elements on either side, may we not expect that at the next great racial interaction between these two grand divisions of humanity, the Asian Semites will prevail to lift Europe wholly out of Aryan polytheism; while in return the European Aryans will redeem Asia from her material desolation and her intellectual darkness, making this desert, morally and physically, bloom like a garden.

In speculating on any prospective interaction of the grander divisions of mankind, we should remember that the instrumentalities for its furtherance are now immeasurably greater than at any former period. Locomotion, whether by sea or land, can now be effected with a rapidity and facility previously unknown; and that, as a result of this, races are now interacting who were never previously in contact. In truth, the entire system of modern European colonisation, as a process whereby the highly civilised Caucasian is carried directly to countries previously inhabited only by savages, at their stone age, is almost a new fact, and, in its present magnitude and importance, certainly inaugurates a new era in the physical history of man. The extinction, rather than the amelioration, of the poor savage is an inevitable result of the stupendous disparity in the social and intellectual elements, thus brought suddenly into such immediate juxtaposition; so that strictly speaking, this phenomenon does not pertain so much to the province of racial interaction as supercession, and indicates, if we mistake not, an epochal revolution in the numerical proportion and geographical distribution of races, itself, perhaps, the effect of climatic and other changes, not the less sure and efficient because almost inconceivably slow in their operation.

Now, the especial instrumentality which has conducted to this phenomenon of displacement, is navigation, and what that has accomplished in three centuries, will be subject matter for all future history. But we have now another and corresponding instrumentality in our present improved means for locomotion by land, the full effects of which have yet to be witnessed. In "Iran and Turan" we have

shown the important bearing of railway communication on the ethnic future of Tartary, where a large extension of the Aryan area cannot fail to result from its operation, and where the resultant racial effect will also be largely one of displacement. But it will be quite otherwise with the present Caucasian area of Asia, whether Semitic or Aryan, where improved means of intercommunication can only eventuate in racial interaction, taking the form, in this case, of European conquest and immigration,—the epicycle, as we have remarked, not of Greek invasion under Alexander, but of that prehistoric movement which carried the Aryan patriarchs to Iran and India, ere Zend and Sanscrit became distinct dialects of their common mother tongue. Now, as Anthropologists, we cannot fail to be interested in the racial effects of an ethnic baptism so extensive, and it will not, perhaps, be altogether foreign to the purpose of the present paper, if we venture a few farther remarks on this subject.

The fact that the Aryans and Semites have their material roots, respectively, in the Turanian and Negroid types of uncultured man, would imply that it is to these divisions they would have recourse in their periods of physical exhaustion for a fresh baptism of bone and muscle, sometimes immediately, as in the case of direct Turanian conquest; and at others more remotely, and in a modified form, as in the Slavonic invasions of Greece, and the Teutonic colonisation of the Celtic area of western Europe. But for mental invigoration and refinement, implying of course a proportionate development of the nervous system, probably the most efficient process is interaction between the two great and contradistinguished types of Caucasian man, that constitute the especial subject matter of our present remarks, under which the Semitic element conduces to moral elevation, and the Aryan provides for intellectual expansion. We see the effects of this, though on a comparatively small scale, regarded numerically and geographically, in the Hebraic and Hellenic divisions of these races as they stand revealed to us on the pages of history. Now, one of the organic specialities of these peoples was their effective Caucasianisation, arising, doubtless, from the circumstance that they were less exposed, than most other divisions of the Semitic and Aryan peoples, to a direct admixture of Negroid and Turanian elements; in place of which they obtained the refining yet invigorating influence of an equally developed yet contrasted type of cultured man. This, then, reveals to us the great ethnic problem of the future, and, we may add, the manner of its solution.

We have already shown that the speciality of these latter, or post-classic ages, as we may term them, is the predominance, from India to Britain, of the muscular over their correlated nervous types,—

this predominance being the effect of military conquest, consequent on the physical exhaustion and political decay of the Indic and Iranic, the Greek, Roman, and Celtic divisions of the great Aryan race, and the corresponding decay of the Amharic, Aramaic, and Hebraic divisions of the Semitic peoples, but temporarily redeemed by the spasmodic outburst of wild Arabian energy at the founding of Mohammedanism. Of necessity, such a subjugation of the superior by the inferior types could not be permanent. In truth, none of these subjugations are other than the normal phenomena of racial interaction, and so, like the tides and seasons, are subject to the law of periodicity. Muscular predominance represents the ebb, nervous predominance, the flood; and what we now see is the setting in of the latter, from the Aryan area of the West. But while the colonial extensions of Europe in America and Africa, and her conquests in Asia, constitute a very important chapter in Aryan history, they are obviously but the incipient stage of the present movement of resurgence and predominance. Except in India, they have left the old civilised area of the East untouched, and thus far have conducted to no direct and effective interaction between the Aryan and Semitic divisions of humanity. This, then, we hold to be the next, and in a sense, the immediately impending phase of the movement. It is obviously a mere question of time, when Asia, from the Bosphorus to the Ganges, shall be subjected to European conquest and occupation; and here the high-caste and civilised Aryan of the West will come in contact, not with hunting savages and nomadic barbarians of Turanian type, but with civilised Semites and eastern Aryans, of as pure blood and proud descent as his own, and who cannot fail to react with great power, both morally and physically, upon their conqueror.

This eastern movement of humanity, and the consequent ethnic baptism of at least western Asia by the Aryans of Europe, promises to open a new chapter in the physical, intellectual, religious, and political history of mankind. Is it not here that we discover the possibility of a new and improved type, uniting the moral elevation of the Semite with the intellectual expansion of the Aryan, and of which we occasionally see, even in Aryan Europe, some magnificent instances, more especially since her long subjection to the partially Semitic influences of Christianity? And it is observable that when men of this type emerge into manifestation on the intellectual plane, they constitute a hierarchy of master-minds of the very highest order. It is only necessary to name Dante and Tasso, Calderon and Camoens, Shakespeare and Bacon, and, perhaps, we may add, as approximative instances, Melanchthon and Sully, Goethe and Cuvier, to recall the lordly altitude of brow, and the exalted coronal region, which gave

even vulgar beholders the impression that here were gods rather than men.

While, then, we are decidedly of opinion, that the next and nearly impending eastern movement of civilisation, will eventuate in a European colonisation of a large portion of Tartaria, and in an ethnic baptism, more or less extensive, of the greater part of Mongolia, we cannot ignore another equally important result, to which it must also of necessity conduce,—we mean the rebaptism of those races of Asia that are already Caucasian in type, and have in previous ages played an important part in promoting the development of civilisation. With the exception of the Arabs, these have all been subjected, for many centuries, to the predominance of Turanian conquerors, whose hopelessly barbarous rule, however, is now obviously drawing to a close, and will be succeeded by the expansive and invigorating leadership of the western Aryans, already in possession of British India. Thus, then, it is obvious that three distinct though allied racial movements are impending over the eastern world, as a result of its temporary subjection to European supremacy ; namely, the extension of the Caucasian area at the expense of the Turanian,—the rehabilitation of the oriental Aryans,—and lastly, though not leastly, the baptism of the high-caste and morally developed Semites by the equally high-caste and intellectually developed Aryans of the West.

It is with the last that we are principally concerned at present. What will be the effect of the moral and physical interaction of these contrasted types of Caucasian man ? Judging by the Jews and Greeks, who present us with the process and its results in the purest form achievable by antiquity, we should be justified in predicting great things from this commingling of the moral and intellectual elements of humanity. Perhaps we should not be going too far in suggesting the possibility of a virtually new—that is, organically and mentally—improved type of man being the result of such a union ; while it can scarcely fail to eventuate in a development of religion, and perhaps literature, into a sublimer phase of manifestation and expression than they have ever hitherto attained. We must remember that, with the exception of the two great nations already named, nearly every distinguished Semitic or Aryan people have been more or less mingled with inferior Negroid or Turanian elements, and have obviously been indebted for many of their ruder attributes and characteristics to the coarser stock, of whose barbarous proclivities they thus partook. Now, the indications as to the future are, that the especially constituent elements of the next great Semitico-Aryan baptism will be between the two purest of the remaining divisions of either race ; namely, the Arabs and the Celts (of Gaul and Britain),

with just such a proportion of Hebraic and Hellenic, and perhaps we may add Italic and Syrian, influences as will suffice for cement between the two extremes.

These things lead us to rather profound depths of investigation, and far-stretching vistas of speculation. Has there ever been, with the Hebraic and Hellenic, or, shall we say, classic, exceptions already named, more than an approximately Caucasianised type that has attained to national distinction, far less imperial supremacy, during the historic period ? and let it be remembered that it is to these two exceptional peoples that we owe our religion, literature, and art. Are there not degrees of Caucasianisation both in the Semitic and Aryan types ? Are the coarse-featured Moor and flat-footed Slavon perfect forms, mentally or physically, of the Caucasian man ? Have they the requisite proportion of nerve to bone and muscle, the contour of head, the chiselling of features, or that finish of the extremities, to say nothing of delicacy of perception, elevation of thought, or grandeur of conception, which we regard as, in some of their higher individualities at least, the natural endowments of a Caucasian people ? Indeed, thus contemplated, is there at present, or has there ever been, a perfectly Caucasianised nation ? In the lower social strata of Aryan and Semitic communities, when existing as actual nations, with all their several orders and classes in efficient activity, do we not find the former tend to a semi-Turanian, and the latter to a semi-Negroid type ? And are we not thus brought back to the idea, perhaps somewhat faintly adumbrated in Iran and Turan, that the Caucasian must be regarded as in some measure a cultured type, alternately product and agent, or shall we say, appropriate organic instrumentality of our higher civilisation ? But it is time we should conclude. Our paper, though long, is so far from being exhaustive, that on many very interesting subjects we have scarcely broken ground. The iconography of Egypt and Assyria as deducible from existing monuments, the comparative anatomy and physiology of the Aryan and the Semite, and we may add, their comparative psychology, demand, and would repay, the most profound investigation. On these, however, as well as many other kindred departments, additional information is being so rapidly accumulated, that the time for enunciating definitive opinions has obviously not yet arrived. They belong to the debateable land of Anthropology, where farther investigation should precede settled conviction, and where anything approaching to dogmatism would be altogether misplaced ; and we have accordingly endeavoured to avoid this, preferring the modest suggestion that courts farther inquiry, to the unwarrantable assumption of authority on grounds admittedly inadequate to its support.

ON THE DEVELOPMENT OF THE HUMAN SPECIES, AND  
THE PERFECTIBILITY OF ITS RACES.\*

By Prof. SCHAAFHAUSEN, Honorary Fellow of the Anthropological Society of London.

NATURE is the universe. Hence, there is no subject which does not belong to the investigation of nature. Proud of so many victories by which natural science has overthrown error and prejudice, she strides triumphantly along foreign provinces, and should she be obstructed in her path, she claims her right; for all science of antiquity has proceeded from her. Thus, there exists by the side of history, which relates the course of times, the names of great kings, wars, and battles, or the rise and decline of arts and sciences, a natural history of the human species investigating the struggles and doings of peoples; the various degrees of culture as a natural development, to which the picture of individual human life forms a counterpart. Peoples, also, have their ages. As organic life in general is determined by natural influences, so is the crude man intimately connected with nature; but even the cultured man is not independent of it, he merely learns to apply her laws to his objects. The knowledge of the surface of the globe has thrown light upon the course of universal history; and since a new science, that of statistics, has commenced a strict investigation into the most complex cultural conditions of modern nations, we have learned that human society everywhere is subject to natural laws,—that events, hitherto deemed accidental, such as deaths, births, the number of marriages, crimes, may be calculated beforehand. Here we meet with the unsolved problem, that liberty of human action and natural necessity stand side by side.

The various cultural conditions of the human species, as they followed each other in time, have a special charm for the naturalist, inasmuch as he sees them side by side in the various human races. Many features in the manners of savage peoples are not sufficiently made use of, to afford a living picture of the beginnings of our own civilisation.

Just as the brightness of light is measured by the depth of the shade; so do we estimate the height of our own civilisation by looking into the depths from which savage peoples often vainly try to emerge.

The judgment concerning the condition of savage races varies ac-

\* Translated from the official Report of the Thirty-third Assembly of German Naturalists and Physicians, held at Bonn.

cording to the assumption of an original equality of disposition in all, or of an original diversity in the respective races. According to the latter view, there are some races utterly incapable of civilisation, and they will and must disappear, like the bears and wolves of the wilderness. "It is not worth while," says a naturalist of the day,\* "to look into the soul of the Negro. It is a judgment of God which is being executed, that, at the approach of civilisation, the savage man must perish." Similar reasons are at present, more than ever, brought forward to palliate slavery. A contrary opinion is derided as philanthropic enthusiasm; and the testimony of numerous travellers and eminent men of science is appealed to, that the Negro never can and never will reach the civilisation of the European; that his destination and his lot is to be dependent on the latter. I must here protest against the justice of such an assertion, and proclaim, in the name of science, equal rights for all human races, in the noblest sense of the word. Although a President of the United States has once said, "The red stripes on our flag are the bloody weals left by the whip upon the backs of our slaves": such an expression is now rarely heard, or when heard, hushed up. Alexander von Humboldt who, in his *Cosmos*, expresses himself decidedly against the assumption of higher and lower races of man, deeming them all destined for liberty, to whom we also owe that the last remnant of the recognition of slavery has disappeared from the Prussian codex; this Humboldt also said, in 1826, that the old Spanish laws on slavery were less cruel than those of the Slave States in North America. He had in July to protest publicly against a translation of his work in New York, in which this passage was omitted. Since then, a great improvement has taken place in the minds of the people. "The immense success," says the *Quarterly Review*, "which Mrs. Beecher-Stowe has achieved by her novel, has given the death-blow to the fugitive slave-law. When, two years ago, a fugitive slave was given up, the tenth part of the whole Union army was required to quell an insurrection. Though it may be admitted that many Negroes are better off in slavery than in their own homes, still, all modern travellers testify that the slave-trade has become for Africa a destructive pestilence; for slave-hunting is almost the sole cause of bloody wars between otherwise pastoral tribes. The dreadful decrease of the population of the South Sea, where the European has imported his vices and his poisons, is quoted as an irrefutable proof that the extinction of savage peoples is inevitable. Certainly, if the Bible is offered to the savage with one hand, and a brandy-bottle with the other, he naturally prefers the latter. And are the North American savages in the wrong in

\* H. Burmeister, *Der Schwarze Mensch in. Geolog. Bildgs.*, v. ii, Leipzig, 1853.

believing that the Great Spirit has given them the land which the white man has robbed them of? We admire patriotism in a civilised people, not in a savage people. According to recent investigations, these tribes are far from being yet exterminated; if united, they still would be able to produce 200,000 warriors, which would have the advantage in their forests and mountains. An American, who had become convinced of the uselessness of a fight, proposes, as the surest means of destroying them, brandy and starvation. With the destruction of the woods, the buffaloes, which form their sustenance, also disappear. It is only shamming justice when the North American government has, for some years past, been in the habit of paying to the Indians an insignificant sum for the cession of lands, by the sale of which in Washington an excellent business is carried on.

In this conflict of races, we are inclined to side with the civilised peoples, on the ground that they oppose culture and humanity to barbarism and cruelty. But justice demands the exposure of the disgraceful arts by which the gold-thirsty European has taken possession of such lands, and has become the destroyer or tormentor of his brethren. Bloodhounds have been trained in Cuba to catch runaway Negroes; and the first English settlers in Australia hunted the savages to obtain meat for their hounds. "The Indian," writes a German traveller in California, "is not only here, but in America generally, looked upon, not as a man, but as a wild beast, whose life anyone is not only justified, but bound to take. The scalps of Pawnee and Apaches Indians are paid by the Mexican government fifty dollars each;\*" hence, hunting the Indians is one of the chief pleasures of the Rancheros." But let not that which the wickedness of man perpetrates be called an inexorable law of nature. "Destruction is easier and more compatible with human indolence and savagery, than the troublesome process of education," are the concluding words of a writer on the fate of the indigenous population of America. Among the most celebrated travellers, naming only Forster and Le Vaillant, Livingstone and Barth, there have never been wanting such who never doubted the good disposition of savages, and expressed their conviction that, in most cases, the cruelty of the savages has been called forth by the disgraceful treatment they experienced from the whites. In most of them, the feeling of revenge, and the fear of treachery, still survive. Just as the question, whether man was originally bad or good, is differently interpreted, so are there some who look upon the savage as a devil, whilst others think to see him in a state of innocence. In point of fact, the savage at one time resembles a child, at another time, a wild beast. On reading the conflicting reports of

\* Compare J. Gregg, *Commerce of the Prairies*, vol. i, p. 299, New York, 1844.

travellers, we must take into consideration that much depends on the mental disposition of the observer ; that in which man is himself deficient, he is unable to recognise in another. A goodnatured enthusiast sees virtues where none exist, and he becomes the victim of craft and cunning ; whilst the merely selfish man pre-supposes the same motives in others. We ought not to feel surprise at finding in the uncultured mind of the savage features of noble sentiments ; for the feeling of right and wrong requires no great mental exertion, and is found vivid in the simple-minded man.

As regards the question of the perfectibility of the savage races, it must not be forgotten that nature takes no leaps, neither from savagery to culture. It is for this reason that the self-sacrificing activity of missionaries has not always had the desired success. Christianity, no doubt, spreads the seeds of civilisation ; but a full crop cannot be expected, unless it falls upon cultivated soil. The inhabitants of Central America have, for three hundred years, been converted to Christianity : but still, in the villages of the mountains, it occurs that behind the Christian altars they secrete their idols and their heathen priests, who add a heathen name to the Christian name by which the child has been baptised. It is said that on the table-land of Guatemala, a few years since, there were still, according to the old custom, new-born children sacrificed to appease Vulkan Attihang. And yet, even Prichard admits that the successes of the Catholic missionaries in South America, where, of one million Christians, but ninety-four thousand are heathens, are much greater than those of the English in the north, who, with puritanical strictness, wish to introduce among the savages divine service ; whilst the former, if need be, lead their followers dancing into the church.

As Christianity teaches the equality of all men ; so science must acknowledge that, notwithstanding all the differences in the stages of culture, the same nature and disposition is innate in all races of man, —that each race has a right to live, and possesses the faculty of development. Even the lowest race has not been so much neglected by nature as not, in certain physical capacities, to excel even the European, or unexpectedly to manifest a deep human feeling. The Australian throws his boomerang with a wonderful skill, so that it strikes the bird and returns to him. Without his moving from the spot, this savage avoids, by the mere flexion of his body, six spears thrown at him in rapid succession.\* Although his language, as Gerstäcker informs us,† contains no word for *love*, he still mourns for the dead. Children dying, under four years of age, are only buried after the lapse of several months. They are carefully packed, carried during

\* Compare *Das Ausland*, 1856, n. 18. † F. Gerstäcker, *Reisen*, 4 Band, 1854.

the day by the mother on her back, and used as pillows at night. When they have become dry and mummified they are buried, or put into a hollow tree. For months after the burial, the women sit near the graves lamenting, and make incisions on their thighs and the chest with flints. Are not these germs of civilisation worthy of careful nurture? They are not developed, because the latter is wanting. Those happy nations which, by the concurrence of the most favourable conditions or life, have for thousands of years become the carriers and promoters of human civilisation, not by their own efforts alone, but by those from generation to generation, from people to people, from the inheritance of mental treasures, are not entitled alone to take possession of the highest goods of humanity, since experience has shown that human civilisation rises higher in proportion as it becomes the common property of all peoples of the earth.

On considering races as essentially different human stocks, their whole history becomes divided into a series of unconnected, successively played dramas. Every race accomplishes what it can, and then leaves the stage. Gobineau\* says, that our present civilisation cannot be compared to that of ancient times; according to which the human species is not progressing but retrograding. Thus it is predicted that the German people are now sufficiently ripe to become the booty of the Slavonians. This is a sorry view of the world, in which it is forgotten that the vital capacity rises with vital development; and that no Christian people has perished, or become so decayed as to render a regeneration impossible.

And how about the proof in favour of the immutability of races? It is said, never has a Negro become white. But his black skin does become paler in cold climates, and who can determine the degree of the change which may supervene, when natural influences have acted upon the race for thousands of years? Is it true that the Jews, as is so frequently asserted, have preserved pure their Asiatic type? That it is not true, despite the seclusion of the race favourable to it, is rendered evident by the comparison of the Israelites of the east with those living in the civilised countries of Europe. The head and the physiognomy of the slaves in the West Indies improve even in the first generation; and the Negro born in America fetches a higher price than the African, because, under the influence of civilisation, he has become physically and mentally improved. When Tschudit† says, "The Negroes will, as a people, even with the most careful education, never reach a high degree of civilisation, because the structure of the

\* *Essai sur l'inégalité des races humaines.* Paris, 1853.

† J. v. Tschudi, *Peru, v. i.* St. Gallen.

skull, and the development of the brain by it too much approaches the animal form," it must first be proved whether that unfavourable shape of skull and brain is immutable for all ages; whilst, as experience has unquestionably shown, mental culture does influence it. The immutability of race-type is not demonstrated; it can, therefore, not be used as a proof against the unity of the human species, the possibility of which cannot be denied by natural science.

But apart from physical conformation, where is that rigidity of mental disposition which is said to be imprinted as an immutable mark upon every race? Blumenbach already has cited a number of Negroes who have distinguished themselves by their mental endowments. Neither are Negroes deficient in courage and bravery. How heroically have they not shown themselves at the storming of Palmares by the Portuguese, when their leaders preferred death to slavery, and cast themselves over the rocks. During the liberation war of Fernambuco against the Dutch, Henriquez acquired such renown that even now Brazilian regiments bear his name.\* The Dutch equally praise the bravery of the Negro regiments in their Indian colonies. During the insurrection of St. Domingo slaves have, with devoted fidelity, saved their masters,—the Spanish families especially were spared, as they treated their slaves with greater lenity. We now know African tales and songs breathing a deep poetical feeling; and of the pastoral peoples south of Benguela it is known that, when they are carried away as slaves, they die of home-sickness. A suicidal mania frequently becomes epidemic amongst Negro slaves, as they believe to return to Africa after death. In order to destroy this belief, the slave-owners cut off the hands of the corpses, and plant them upon the graves.

Carus,† who ascribes an unequal capacity for higher mental development to the various races of mankind, asserts that never has a Negro, confined to his own stock, risen to importance; and as regards the fate of whole peoples, he adopts the motto of the poet, "the history of the world is the judgment of the world." Gobineau also says, "Because the Negroes, during so many centuries, as they are known, have never become anything by themselves, and scarcely by the impulse from without, it is not likely that they can become much in the future."

Pott,‡ replies to this, "Where does the man live who can boast, without an intimate knowledge of languages but little or not at all

\* Eugendas, *Reise in Brasilien*. Paris, 1835.

† C. G. Carus, *Ueber ungleiche Befähigung der Verschiedenen Menschheitsstämme*. Leipzig, 1859.

‡ A. F. Pott, *Die ungleichheit menschlicher Rassen, Lemgo und Delmold*, 1856.

known, to descend into the mental depth of peoples, and take its measure?" "It is in language," he adds, "despite its curious variegation and manifoldness, that the one and universal human spirit reigns. Unquestionably, humanity occupies different degrees of culture. But that the peoples of the Caucasian race can show the highest performances in art and science, is not owing to the race; for Peruvians and Mexicans, Chinese and Japanese, had, centuries before many peoples of the Caucasian race, reached a higher degree of civilisation than can, even at the present day, be shown by many peoples of the Caucasian stock, such as Tsherkesses, Croats, Berbers, and others. Moreover, none of the European nations can boast of owing its civilisation to its own tribe. A great portion of our civilisation we have received from the Greeks and Romans; these again received it from Asia and Egypt. We know not to what race the beginning of civilisation is to be ascribed.

It is by civilisation that the peoples of the Indo-Germanic stock have become the noblest and finest branches of the tree of humanity, not because they possessed a higher innate disposition from the beginning. What is called the character of a people, which for centuries preserves its peculiar stamp, is not an innate peculiarity, but an acquired direction of psychical life, derived from early and deeply imbibed influences, which may be preserved, as are physical marks. Thus, dark hair and eyes, in temperate climates, may even, after a thousand years, indicate a southern origin, and, in our Rhenish towns, Roman blood.

Place the peoples into different conditions of life, and they will imperceptibly undergo a change. When the inhabitants of the New World first saw Spanish cavalry, they were surprised; but when the soldiers dismounted, they became terrified; for they took horse and man to be one body, the horse being unknown to them. At present, the Patagonians are mounted nomads, who cross the Pampas as the nomads of High Asia cross their steppes, and as the Indians of the north hunt the bison on horseback up to the rocky mountains. The cannibal Caribees are at present Christian agriculturists; whilst the Hottentots, driven away from their fertile hills by the Cape colonists, have, from peaceable shepherds, become miserable savages. A Boto-kudo became the apostle of his people, who, by the abolition of the punishment of death, are in this respect in advance of us. A Cherokee has invented an alphabet for his people, who, according to Catlin possess nice farms, written laws, good schools, and charitable institutions.\* Who, looking at the Hungarians, would say that they

\* J. C. Prichard, *Naturgeschichte des Menschengeschlechts herausgegeben von R. Wagner und F. Will.* 4 Band, Leipzig, 1848.

are Fins, were it not that their language betrays the fact? The poor Irish, one-fourth of whom have, during the last ten years, left their homes, have, in the New World, become an industrious, temperate, and cleanly people, the opposite of what they were at home.

We should never forget that the history of the most civilised people points back to periods of savagery; that the vestiges of human sacrifices are found both in Homer and the Old Testament; and that the primitive inhabitants of Europe were savages. Although the German occupied a higher stage, still the Romans, who sold Celts and Germans in their slave-markets, had a better right than we have to say, "These barbarians are incapable of civilisation." At the time of Julian, German tribes were dressed in skins, or went about naked. The Heruli went, down to the sixth century, naked into battle; and our ancestors immolated their prisoners in the eighth century. Strabo says: "The Belgians have the custom, on returning from their wars, to hang up the heads of the slain around the necks of their horses, and to nail them above their house-doors. Posidonius observes that he has frequently seen this." "The heads of men of rank are anointed with cedar-oil, in order to preserve them better. These and other customs have been abolished by the Romans. The inhabitants of Ireland are cannibals; they consider it praiseworthy to consume their dead parents." Is this not like reading a description of Indians, or of South Sea savages? May we not expect similar results as those obtained by Roman civilisation?

One of the great means which nature employs for the improvement of the species is the intermixture of races. Thus, after the conquest of Roman provinces by the Germans, a rejuvenescence of most European peoples took place. As regards England, Dahlmann observes, "Our belief in the intellectual privilege of a pure, unmixed breed is a worthless superstition; Attica and Rome refute it." And in our own fatherland, do we find that the most mixed tribes of south-western Germany are the worst endowed physically and psychically? That which wars and conquests once effected by imparting to unnerved, sickening nations, the rude force of an uncorrupted primitive people is now being produced by the peaceable intercourse of peoples in all seas, and all parts of the globe.

And what is to be the future of species? If Gobineau be in the right, who sees in the intermixture of peoples the cause of their degeneration, the species must sink deeper and deeper, and finally decay. We, on the other hand, believe that the result will be, that a more homogeneous, a purer, and more perfect species will issue. The human races will not, on that account, entirely disappear; for although culture has the tendency to equalise what nature has separated, and

just as, even now, for example, the cultivated classes in all European capitals more resemble each other physically, than the rural populations of the respective countries, still culture cannot change the cosmic laws, and the climatic vital conditions depending on them will continue to exist, and preserve a variation in the human form.

We look upon culture and civilisation as the natural development of our species ; others place civilisation and nature in hostile opposition. Many qualities and capacities are considered as natural to, and innate in man, which have only been acquired by education. There exists no man without any culture, for then he would not be a man. In the lowest state of savagery, man has already implements of stone or bones, skins, and mats. Rousseau, in his zeal against the excrescences of an effeminate culture, when mothers no longer suckled their own children, and confined the new-born infant so as to impede its movement, committed an extravagance by wishing to return to rude nature. He would have changed him into a savage. He went so far as to call it ill-treating nature when the gardener pruned his fruit-trees ; he ignored that every noble fruit has only become so by the labour of man. Even the peach, as it grows wild in Persia, is bitter and juiceless, and so are by nature all roots and herbs we use for our daily food. Not nature but man has developed the rose ; a Georgina, which now ornaments our gardens, did not exist fifty years ago. The Arab horse, as it now exists, is the work of human care ; and, as it appears, it is by human cultivation that the grasses yield grains which again become seeds of culture. There is, no doubt, man has also, according to his humour, deformed nature, but in thousands of cases he has beautified it. Even the physical beauty of man cannot be separated from his culture. The peoples mentally distinguished have, at all times, been the most beautiful. Bodenstedt\* has lately, like many before him, rectified the exaggerated description of the beauty of the inhabitants of the Caucasus, giving, especially as regards the female sex, the preference to European beauty, which combines physical charms with those of mental grace, and is alone capable of high psychical expression : the whiteness and delicacy of the skin is owing to the protection afforded by dress, and the small well-formed foot and graceful carriage, to the smooth foot-pavement of their cities. Nor must we omit the influence of cleanliness, which is so great that, according to Liebig, the civilisation of a nation might be determined by the quantity of soap it consumes. Thus, culture shows itself by an improved beauty of man.

But by what is the cultivation of whole peoples, which we call civilisation, most manifested ? By the dominion of man over nature,

\* Bodenstedt, *Die Völker des Kaukasus.* 1855.

by the general spread of knowledge,—the flourishing condition of industry, art, and science,—the refinement of manners,—the mildness of laws,—personal security and liberty,—the position of woman,—and, finally, by the acknowledgment of human dignity. The higher the civilisation, the more valuable is human life. The great means towards attaining these objects, consist in the acquisition of our mental inheritances, liberty of investigation, the division of labour, the unimpeded development of social conditions, the widest intercourse between men and peoples and their thoughts, called forth by a community of human interests, which will more surely promote the aims of humanity, and secure to civilised countries the peaceful possession and the growth of their prosperity.

And if, despite all this, anyone doubts the progress of the human species, natural sciences alone, which have transformed old myths into truths, will refute him. Is it not natural science that, with her divining-rod, discovers the treasures hid in the crust of the earth? Is it not her that knocks at the rock until the spring gushes forth? Has she not banished pain, and lengthened the life of man? Instead of the mythical numbers of Pythagoras, she has laid bare that mysterious law of numbers which combines the elements of all bodies. And although Socrates called it an idle undertaking to search the heavens, we have succeeded in measuring the distance the light traverses from remote stars; we weigh the sun, and calculate the orbits of comets. On the very spot where calculation indicates the position of a new planet, there is it found by the telescope, which makes us almost better acquainted with the mountains of the moon, than with many mountains of the earth; which resolves the nebulae into clusters of stars, and indicates the course of the sun and the earth through space.

Those fools only, who would know everything, for whom the mere enlargement of the boundaries of our knowledge possesses no value, they alone remain dissatisfied.

But the best that we can know, is the conviction that there is implanted in human nature the germ of perfectibility, and that we are all called upon to contribute to it. Nature is not rigid, but pliable; it rests not, its essence is motion; but gravity is not alone the ruling law, the noble organised forms seek the light! The human species also seeks it.

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ARGYLL ON ARCHAIC ANTHROPOLOGICAL  
SPECULATIONS.\*

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AN essay on Archaic Anthropology, by the author of the *The Reign of Law*, was, as is well known, called forth by a statement made at the meeting of the British Association in 1867, to the effect, that the primitive condition of man was one of "utter barbarism." This is the doctrine which a titled Scotchman controverts, and undertakes to refute.

Without giving any opinion of our own on the cogency of his argument, preferring rather to leave that to the judgment of our readers, we will endeavour to give some account of the reasoning upon which the author's conclusions are founded, premising that it embraces many points of the highest interest, very ably handled, and forming, on the whole, a valuable contribution to Archaic Anthropological science. It is very desirable that all matters of scientific research should be viewed under various aspects, and from different points of sight, if we really wish to obtain correct impressions of their true nature and significance ; for perhaps we are all, as lovers and followers of science, too much inclined to take things in general on authority, —to receive the dicta of professors too much upon trust, forgetting the Horatian maxim, "nullius jurare in verba magistri,"—to adopt scholastic phrases without a sufficient examination of their import ; whereas, an independent exercise of thought, and a fearless expression of opinion, although in regard to some particular scientific creed it might brand us as heretics, is much more creditable, and assuredly much more grateful to an ingenuous mind, whose object is simply the discovery of truth.

In this essay, the author professes to meet his antagonist on scientific grounds only, and to fight him with his own weapons : yet, we observe, that he does not ignore altogether the aid to be obtained from a due respect to the Mosaic narrative. We hold that he is right, and that he has done well to try and restrain and expose those wild flights of imagination which characterise some of the pseudo-scientific theories of the day.

The subject of "Primeval Man" resolves itself into three separate questions, each of which is independent of the other, and here receives its separate consideration :—

\* *Primeval Man : an Examination of some Recent Speculations.* By the Duke of Argyll. Strahan & Co., 2nd edit., 1869, pp. 200.

"1st. The origin of man considered simply as a species ; that is to say, the method of his creation, or introduction into the world.

"2nd. The antiquity of man ; or the time in the geological history and preparation of the globe at which this creation or introduction took place.

"3rd. His mental, moral, and intellectual condition when first created."

1st. *His Origin.* To himself, his origin is totally incomprehensible ; his consciousness and experience teach him nothing. Of the vast number of animals and plants that exist on the globe, he has never witnessed the origin of one of them. By artificial processes and modes of culture, varieties may be produced, departing more or less from the type of the parent stock, but they are not permanent, and either die out or revert to their original types. Man has never seen the origin of a new species ; and yet, through illimitable periods of past time, represented by geological formations, a constant introduction of new types and species has taken place. We are not cognisant of any other law by which species and genera are continued than the law of generation ; therefore, it is assumed that through the agency of this law has been the production of different species, as well as individuals. Even under this idea, our researches will carry us back to a time when life was not ; therefore, some other law is needed to account for its beginning. In fact, the hypothesis of development and transmutation is only that of another method of creation, and is involved in as many difficulties as any other method of creation can be, and equally beyond the reach of our comprehension. Still, those difficulties are not theological ; they are scientific. These difficulties are specially applicable to the hypothesis of man's origin. The analogies that exist between the anatomical structure of man and the gorilla, or chimpanzee, are not of such a character as to justify the belief of his generic relationship to those animals. And the phenomena of mind constitute a gulf between them, which no analogies of structure may bridge over. And it will be found that his corporal structure is in strict harmony with his mind. "Whatever may be the anatomical difference between man and the gorilla, that difference is the equivalent, in physical organisation, of the whole mental difference between a gorilla and a man." The cranial capacity of the lowest races of man greatly exceeds that of any known ape. Professor Vogt has, perhaps, laid too much stress on microcephalism in viewing this idiotic skull-form as an approximation to the simian type ; if, indeed, it were accompanied with other anatomical peculiarities expressive of that type,—as, for instance, the prehensile character of the foot,—then, indeed, we might truly view it as a reversion to the animal

origin ; but without this, we see no more in the idiot skull than a specimen of undeveloped structure, arising from some abnormal deviation of the structural law. If the structure and mental endowment of primeval man approximated him nearer to the beasts, than do the physical and mental endowment of the lowest Australian savage, then his struggle for existence must have been, indeed, hopeless ; and we do not see how he could have emerged from his bestial type to become the progenitor of a race of heroes and philosophers. The most ancient skeletons yet discovered, differ but in a small degree from those of existing races. All the evidence as yet is in favour of man as a distinct species, "separated by a gulf practically immeasurable from all the creatures that are, or that are known even to have been his contemporaries in the world."

2. *The Antiquity of Man.* This is a matter of evidence, which evidence is derived from history, archaeology, geology, philology, and the distribution of the various races of mankind,—chronologically, we are unable to fix the date of his creation. The Hebrew history alone professes to give his genealogy ; and "the sole object of that history appears to be to give, in outline, the order of such transactions as had a special bearing on religious truth, and on the course of spiritual belief." History may be said to begin with Abraham, about 2,000 b.c. ; but between this date and the Flood there is a wide interval, in which monarchies and nations rose and flourished, now only inferentially known ; nor are we yet able to form a correct estimate of the time that interval embraces. Wide it must be. German scholars compute the foundation of the Egyptian monarchy at 700 years at least before the historical period. There is a difference of 800 years in the Hebrew, Samaritan, and Septuagint chronologies ; and when such a discrepancy exists, no absolute dependence can be placed on the common method of computation. The Flood must have happened much earlier than is generally reckoned ; for the dispersion of mankind requires a more extended period than is usually allotted to it. The distinctive types of different races are as strongly marked in Egyptian monuments, some of which extend back to 1,900 b.c., as now. The Negro type is unmistakably so. This naturally leads to the consideration of the origin of racial types ; can such varieties have proceeded from a single stock ? The author is evidently no advocate of plurality of origin and permanency of type. "All the evidence of science tends to the conclusion, that each well-marked species (variety) has spread from some one centre of creation, and presumably from a single pair." The evidence derived from language points to the same conclusion of the high antiquity of man. From geology we learn that whole groups of quadrupeds have become extinct since man appeared upon the earth, not by his hand, but by

changes in its geography and climate. The evidence afforded by cave-researches is very demonstrative of this question. It throws back man's antiquity to a period when the relative configuration of land and water was very different from what it is now, and when the same climatic conditions did not exist. The author concludes this division of his subject in a passage as notable for its eloquence as for its religious and liberal spirit : "I know of no one moral or religious truth which depends on a short estimate of man's antiquity. On the contrary, a high estimate of that antiquity is of great value, in its bearing upon another question much more important than the question of time can ever be, viz., the question of the Unity of the Human Race. We must, indeed, be very cautious in identifying the interests of religion with any interpretation (however certain we may have hitherto assumed it to be) of the language of Scripture upon subjects which are accessible to scientific research. . . . The older the human family can be proved to be, the more possible and probable it is that it has descended from a single pair. My own firm belief is that all scientific evidence is in favour of this conclusion ; and I regard all new proofs of the antiquity of man as tending to establish it on a firmer basis."

3. *Primitive Condition.* At the outset of this question it is necessary to define what is meant by "civilisation", before we can affirm that the primeval state of man was one of "utter barbarism", and this is just what has not been done. It includes considerations of the moral as well as the intellectual faculties ; his capacity for acquiring knowledge, as well as the actual acquirement of it. It is evident that a strong moral sense may coexist with a very limited amount of knowledge, and *vice versa*. Ignorance of the industrial arts might coexist with the consciousness of moral obligation, and a being so constituted could not be said to be "utterly barbarous." Such an epithet implies both moral and intellectual degradation, which states are not necessarily coincident. Again, whatever savage and barbarous customs may be traced in the history of civilised races, do not prove those races to have been originally barbarous : they do prove the dual nature of man, and that the natural tendency of it is to the evil side. The truth is, that man seems to have been originally endowed with certain instinctive faculties, which placed him far above the level of all other animals, although his knowledge of the industrial and mechanical arts may have been of the most infantile grade. If the savage races be taken as the type of man's primeval condition, it will be found that they exhibit great skill and ingenuity in the manufacture of their simple stone, flint, or bone weapons and implements. The men who first discovered the use of fire must have been original geniuses, and it indicates either the identity of human intelligence or descent from one common centre. It certainly is no

proof of "utter barbarism." But if man is susceptible of improvement, he is also susceptible of degradation, morally, physically, and intellectually. This is an indisputable fact. In the earliest condition of man in a social community, the law of increase would necessitate migration, which would act primarily on the weaker tribes, who, as they wandered farther and farther from the centre, would become ruder and ruder, and eventually assume, in new lands and under new conditions, more barbarous phases of existence. Their original knowledge would be in a measure forgotten ; but still these outcasts are capable of developing the higher attributes of humanity when placed in more favourable circumstances. The author accepts the evidence afforded by the drift implements found in caves and undisturbed gravel-beds, that they are of very ancient date, and may imply the existence of man at the close of the glacial age,—“but what follows ? The inevitable conclusion is, that it must be about as safe to argue from those implements as to the condition of man at that time, in the countries of his primeval home, as it would be in our day to argue from the habits and arts of the Esquimo, as to the state of civilisation in London or in Paris.”

There has been no universal stone age preceding the use of metals. The use of stone implements has been co-ordinate with high degrees of civilisation ; whilst the South Sea islanders are in the stone age now, and the natives of the interior of Africa appear to have been always workers of iron. The absence of notions of religion in some savage races is no proof of primeval barbarism, for it is an unquestionable fact that religion may be very easily lost ; and the further we can carry back our researches into the history of nations, we invariably find that their earliest forms of religious belief were the simplest and purest, for the nature of man enfolds within itself the principle of moral degradation and corruption.

With these remarks our author closes his argument, and we also our exposition of it. It is more than probable that many of our readers may remain unconvinced, and that they will demur to some of the doctrines and principles enunciated in this essay ; but at all events, they will agree as to the importance belonging to them in an anthropological point of view, and will be gratified with the lucid manner in which they are treated, as well as by the liberal spirit in which the controversy is conducted. Our object is to present to our readers a fair and unbiassed account of the contents of works brought under our notice, whatever the opinions advanced may be, and having done this in the present case, we cordially recommend a perusal of the essay itself, and hope that the author may soon enjoy more leisure to pursue his anthropological studies.

RESUME OF THE "BULLETINS" OF THE PARIS  
ANTHROPOLOGICAL SOCIETY.

(Year 1868.)

By E. VILLIN, F.A.S.L., F.R.S.L.

Civilisation.—Basques of St. Jean-de-Luz.—The Olmo Skull.—The Influence of Geological Media.—The Eyzies Caves.

THE last time we reviewed the above *Bulletins* we promised to give our readers an outline of the papers (contained in the two numbers ending the year 1867), bearing upon Civilisation and Religion, contributed by MM. Coudereau, Pellarin, and Bataillard. But now that Mr. L. O. Pike has very ably treated both these subjects before the Anthropological Society of London, we shall confine ourselves to indicating the conclusions (if they be conclusions) of the Paris Anthropologists.

M. Coudereau's paper upon "*Civilisation*" is a scientific attempt to accurately fix the meaning of the word civilisation—a term vague enough etymologically, but still more vague practically, since we see it applied to at least twenty different kinds of communities. After reminding his audience that every important human institution has its germ in animal societies, the author inquires : "Shall we place the starting point of civilisation in animality—

"a. At the time when temporary association appears ?

"b. At the time when the association becomes permanent, but when it is still unconscious of the realised and realisable progress ?

"c. Or, shall we only place it at the time when reflection takes place, and when the animal can reckon the progress effected, and to be effected ?"

The author prefers selecting the last point, without, however, pronouncing definitively, and he gives his reason for his preference : "Our mind attaches to the word civilisation an idea of action on the part of the civilised ; for, before experience and reflection have intervened into progress, the species had not chosen the ameliorations ; they had been subjected to them under the influence of the brutal process of nature. With reflection, there appears the desired, longed-for, progress. The creature then begins to voluntarily struggle with nature—the latter itself giving a direction to the struggle. From passive, which it had been hitherto, it becomes active."

M. Pellarin, in a very able paper on the same subject, brings the question nearer to us. He is less rigorous than M. Coudereau, and simply looks for a *sociometre* amongst the different stages of humanity.

Dividing humanity into four great social types: the Savage, the Patriarchal, the Barbarous, and the Civilised states, and discarding religious doctrines as an infallible *sociomètre*, he says in conclusion:

"1. There is a succession of periods or social forms through which humanity passes in its unconscious march towards the end of its destiny, which is the realisation of justice, liberty, and happiness.

"2. Civilisation is but one of these periods or forms, which has for its especial mission to prepare the instruments of liberty, of happiness, but which is incapable of extending equitably to all, the enjoyment of these; that, only social forms superior to civilisation will be able to accomplish."

MM. Coudereau and Pellarin, we need hardly say, developed their subject through a revision of scientific and historical facts, most learned and instructive, and both their treatises are very interesting to English readers, as exemplifying once more the admirable lucidity of our Parisian brethren. We must, nevertheless, own that, in spite of subsequent papers by MM. Coudereau and Bataillard, and a brilliant discussion in which several members joined (MM. Pruner-Bey, Dally, Barrier, Gaussen, Bertrand, and de Blignières), the question was left what it was before, except that a new and convenient word was coined, *viz.*, *sociomètre*.

The year 1868 was brilliantly ushered in by M. Broca, who, at the meeting of the 9th of January, read a paper upon "The Basques of St. Jean-de-Luz,"—the first of a series on the Basques by himself and other members.

In this paper M. Broca gives a table of observations as regards hair, eyes, and cephalic indices, on forty-seven living subjects, confirming the fact that the inhabitants of Guipuscoa and Biscay are in a great majority dolichocephalic—a fact which the previous examination of seventy-eight skulls from Zaraus had foreshadowed already.

At the meeting of January the 23rd, M. Broca presented the Paris Society a collection of fifty-eight skulls from St. Jean-de-Luz, the examination of which strengthened the above conclusion. The consequence of this discovery cannot be exaggerated, since it tends more than anything to disprove Retzius' theory. Roughly speaking, every Anthropologist knows that Retzius' theory, stripped of all phraseology, is—1. That the *Autochthones*, *i.e.*, the primitive population of Europe—the age of stone-man—were brachycephalic. 2. That the foreign population which settled in Europe immediately afterwards, *i.e.*, the age of bronze man, were dolichocephalic. Hence, as the Basques, the Fins, and the Laplanders are the only Europeans who speak a language foreign to the Indo-European family, it was premised that they all must necessarily be brachycephalic. But now it is no longer per-

mitted to doubt that Retzius was hasty. The proofs brought forward by M. Broca, who does not theorise, but demonstrates facts, seem absolutely to fix anthropology on its right bases in Europe, namely, that brachycephalic and dolichocephalic men were contemporaneous, instead of the latter succeeding the annihilation of the former.

The Vascons (or Spanish Basques) who live on the southern declivity of the Pyrenees, are decidedly a partially mixed semi-dolichocephalic population, whereas the French Basques (St. Jean-de-Luz) present a mixed population, wherein the brachycephali predominate. And what gives the difference a still more typical character is that the dolichocephaly of the Vascons is occipital.

M. Broca enumerated all the details of his researches at great length, and, to our mind, completely and conclusively. We cannot pretend in these few lines to do justice to this magnificent contribution. To go into the question of measurement of the skulls, of sex, age, origin and history in an incomplete manner, would deprive the paper of all its merits, and rob the student of the pleasure he will have in reading it. This, however, we must say, that M. Pruner-Bey, who is one of Retzius' disciples, did not admit M. Broca's facts as conclusive. Without going into a question for which he was unprepared, he only allowed that the Basques "are a very mixed people,"—which is saying very little, in our humble estimation, against an array of formidable facts, facts which, M. Broca said—and there he emphatically expressed his belief—"must do away with the erroneous view hitherto entertained."

At the same meeting, M. Pruner-Bey, who had also presented the Society with ten Toulouse skulls (Aquitaine), recognised a similarity between them and the Basque skulls. This caused M. Broca to remind the meeting that Toulouse had probably been founded by people affiliated to the actual Basques, Tolosa being a Basque name, and there still being in the Guipuscoa province a town of that name. M. Quatrefages, who had inhabited Toulouse, said that the sprightly alluring (*provocatrice*) physiognomy of the Toulouse women is very striking in comparison to that of the Agde and the Arles women.

The Olmo human skull, whose cast had been sent from Italy by Professor Cocchi, of Florence, was declared to belong to the quaternary period by M. Pruner-Bey.

We are not aware that a cast of this celebrated skull was ever received by the London Society.

The paper, "A Comparison of Cephalic Indices upon the Living Subject and upon the Skeleton," by M. Broca, shows that the skull is 6 millimètres less than the head, in its antero-posterior diameter, and

8 millimètres in its transverse diameter ; giving a difference of 1·68 as the average cephalic index between the head and the skull.

"Upon the Action of Geological Media in the Aveyron District" is the title of a paper, by M. Durand (de Gros), which gave rise to a controversy extending over two months, in which MM. Broca, Lagneau, Quatrefages and others took part, all of whom greatly differed in their views on the subject. The question involved is,—To what extent can the geological composition of the soil modify any given race ?

There was a good deal of eagerness, and perhaps at first a little confusion, displayed by the Paris Anthropologists when the question was started by M. Durand, and, if the confusion disappeared in the end entirely, the continued eagerness of each party to preserve his ground has done much for the elucidation of the subject, which has as yet been left untouched by English Anthropologists.

The Aveyron department is geologically divided into two mountainous groups, one chalky, the other belonging to other crystallised rocks ; both these masses wind about, overlap each other, and penetrate into one another in deep prolongings. To each of these territorial divisions there corresponds a distinct population, which differ almost as much as the two soils themselves. The Aveyronese of Causse, the chalky country, drinking clear water and eating oat or barley bread, acquires a size above the average, with a strongly developed bone system, and magnificent teeth ; he is physically as well as mentally heavy.

The Aveyronese of Segala—the district of poor (*aigre*) lands—is a man feeding on chestnuts and rye bread, and drinking cider ; he has bad teeth, is quick witted, is slightly built, and attains a size decidedly small in some cantons. The difference goes further still : it affects the pronunciation of the *patois*. As a rule, in the Causse country—Jurassic or crystallised rock—and this holds good for the surrounding departments where the soil is similar—the Spanish *ch*, and the *dj* or *j*, are pronounced *dj* and *j*, and this pronunciation stops short or begins abruptly anew with the Jurassic veins. On the other soil, either the gneiss or the mica schist, these sounds are converted into *tz* and *z* as often as the mica schist or the gneiss is reached. M. Durand admitted that this suffered, perhaps, considerable exceptions, but generally speaking it amounted to a rule.

All these facts were detailed at some length, and the *exposé* was made still more complete by a valuable letter from M. Jules Bonhomme, a judicious and learned naturalist and agronomer inhabiting Aveyron, who went into particulars as regards size, dentition, head, hair, and morals.

M. Durand (de Gros) also mentioned a curious fact, namely, that

the rural population are almost universally brachycephalic, whereas dolichocephaly is one of the characters of the urbane population.

His conclusion was : "That the Anthropological types which offer themselves to us in the displaced, mixed, and disturbed populations of our West, are veritable palimpsests bearing, not upon two, but upon three strata of characters ; that of the primitive and pure blood, that of the crossings, and, lastly, that of the media. The task of Ethnical Anthropology consists in unravelling these three characters, and in afterwards deciphering each separately ; our danger lies in confounding them, and hence missing the end of our efforts."

This interesting communication was received rather unfavourably by several members, who, perhaps hastily, imputed to the learned contributor a wish to entirely disregard the *race* elements, and to attribute the differences he had enumerated solely to geological influences. And M. Durand had been strongly assailed, indeed, before he could completely clear himself of dark heterodoxy on race influence, and explain that, on the subject under discussion, if, as he fully admitted, race could not be ignored, the medial influences were at least immense and incontestable. Anthropologists, therefore, ought not to ignore a fact which zootechny had reproduced as well in the same district. M. Jules Bonhomme is precise on this point : "If you take twelve two-and-a-half-year bulls, one as nearly alike another as possible, from one breeding herd of the mountain of Aubrac or La Guiole (basaltic soil), and make three lots of them, one of which is to remain on the mountain, the other to go into Causse (chalky soil), and the third to go to Levezou (gneissic soil), these three lots within three years' time will seem to belong to three distinct varieties. Those which remained at Aubrac will be compactly set, their limbs and heads of middle size, and present much harmony in their whole shape. The Causse lot will be larger, the bones stronger, but the beauty of form will be inferior. The Levezou lot will be long and high in shape, the limbs and heads will be slender, and the hoofs will be remarkably small—all of which alterations are satisfactorily explained chemically."

It was then that M. Lagneau read his short paper on the Aveyron Saracens, which has been wholly inserted in the *Memoirs* of the London Society, and which, although it bore on race alone, did not weaken M. Durand's arguments.

In the discussion, M. Broca did not deny the influence of media within certain limits, but he stated his opinion that M. Durand's conclusions were hardly founded, and that what he took for geological influence was in reality a gross result of race ; that, as regards the difference in the pronunciation, it amounted to nothing more than habit, fashion, or early training. This last opinion, in which we for

our part entirely concur, was, however, ably controverted by M. Durand in a very interesting digression on etymology, phonation, growth of languages, &c., which went far to strengthen his position. But M. d'Abbadie denied the influence of habitat on the phonological peculiarities in question, adducing the case of the Basques, the Ethiopians, and the Aymara people, respecting the letter *r*, in proof of his argument. M. Girard de Rialle sided with MM. Broca, Bertrand, and d'Abbadie, but we think he was unfortunate in selecting his example and in saying that the Chinese could *not* pronounce the letter *r*. We can affirm that the Chinese have that sound in four of their radicals and in five hundred and fifty-four words. (See *Morrison's Dictionary*.)

But whilst those gentlemen were assailing M. Durand, he received a partial support from MM. Lunier, Bataillard, and Quatrefages, a support, however, weaker on the head of language than on the score of physical conformation.

On the 2nd of April, 1868, the subject furnished another paper to the indefatigable M. Durand de Gros, who derived material support from extracts from M. Magne's work *On Agriculture*, and from the *Origine et Transformation de l'Homme*, by M. P. Trémaux. Other authorities were quoted besides those, and the discussion re-opened with unslackening vigour, each side, however, somewhat abandoning exclusive views, until at last it was ended by M. Durand, who said that "his unique pretension was to call the attention of his colleagues to the study of the question of media considered as modifying agents in the forms of life. Pathology, hygiene, sociology, and zootechny had already entered into this fruitful path wherein Anthropology should now precede them and be their guide." And we believe that the serious attention which his papers produced will have the desired effect.

At the same meeting M. Jouvenel communicated a paper from Signor Nicolucci upon "The Age of Stone in Italy," in which the learned professor expresses his belief, founded on observations the table of which is furnished, that the people who inhabited Italy at the stone-period had a cranial form differing from that of the people who introduced the use of bronze. The bronze-type has, in his opinion, maintained itself in Italy ever since, and the stone-type still exists in small families in Italy and other parts of Europe. These two propositions Signor Nicolucci promised to trace up in an ulterior and more extensive contribution to anthropology.

*Upon the Skulls and Bones of Les Eyzies.*—We now come to the great anthropological discovery of the year 1868—assuredly one of the most precious discoveries ever made—the one which last year thrilled

every fibre of scientific men with pleasure. We allude to the famous treasure dug up by the distinguished geologist M. Lartet fils, at Les Eyzies, in the Périgord province.

M. Lartet fils, before depositing the excavated objects in the Paris Museum, was invited by the Ministre de l'Instruction Publique, who had generously covered all the expenses (an example which we commend to the consideration of Her Majesty's Government), to submit the human bones to the Anthropological Society of Paris for definite examination. It was, then, at the meeting of the 21st of May that M. Lartet fils read the history of his discovery to the anthropologists, a paper of the highest interest, describing splendid stone implements (some being beautifully ornamented with carvings), but to which we must refer the reader for want of space here.

The bones and skulls had been under M. Broca's examination for some time, so that on the same day the learned anthropologist could give the audience the benefit of his labours in one of those papers which he alone knows how to write, wherein the reader knows not what to admire most, either the exposition of the subject, the general bearing, the analysed details, the terse logic, the conclusions, or the lucid, simple, fluent, and, at the same time, nervous style of the author. As palaeontologists by the mere examination of a bone fragment can at once re-build in imagination the being to which it belonged, so can we, by the reading of any part of M. Broca's paper, form an idea of the magnitude of the subject treated.

This paper has been abstracted in our October review for 1868, and we therefore refer the reader to our vol. vi, p. 408; but as the subject is interesting to us beyond any which has been brought under the notice of anthropologists for years, we propose, as succinctly as possible, giving the pith of the discussion it caused.

"One thing can be boldly stated, M. Broca had said in summing up, namely, that the Eyzies race is entirely different from all the other races, ancient or modern, as yet known to us."

On May the 4th, M. Pruner-Bey read a paper controverting very nearly every point enumerated by M. Broca, to which the latter, in a long and skilful speech, seems, to us at least, to have successfully disposed of the arguments brought forward. Furthermore, M. Broca at the next meeting read a new paper on the same subject, called "Les Eyzies Skulls and the Esthonian Theory," which, if it had any effect at all, established his facts still more inexpugnably. Nothing daunted, M. Pruner-Bey, with his usual ardour and skill, and that, too, on the ominous 18th of June, gallantly again attacked his accomplished opponent. But the position was not to be carried by a *coup-de-main*, and the heavy artillery of M. Pruner-Bey, if it effected a breach, was

insufficient for a successful assault ; so that M. Broca remained thus far absolute master of his stronghold.

M. Pruner-Bey, objecting no doubt as a scientific man to have to deal with caricature, thus criticised the new subject :—“ This Périgord troglodyte had the legs of a gorilla, the prognathism of a negro, the eyes of a Chinese, all of which were crowned by a skull advantageously shaped enough, cerebrally, to account for the artistic aptitude of those ancient populations. Let us confess, gentlemen, that if the diagnosis of these feature were exact, which is not the case, the pseudo-human beings of Ctesias would cease belonging to mythology.” We see the tone. M. Pruner-Bey was able, it is true, to produce a mandible belonging to a Celt skull of the iron-age, the ascending branch of which is as long as 57 millimètres, whereas that of Les Eyzies is 49 only. He owned that such dimensions were quite exceptional, “ Yet,” said he, “ they can be met with sometimes, and do not exclusively belong to the race of Les Eyzies.” If M. Pruner-Bey had followed, proof in hand, M. Broca step by step, and, instead of theories, opposed stern facts or only one skull to M. Broca’s skulls, tibias, femora, humeri, and ribs, and upon such a datum based his arguments, the conclusion arrived at would indeed have been left undecided. But nothing of the sort took place. M. Pruner-Bey either retrenched himself behind the Estonian theory, or he called the flattening of the tibias the effects of rachitism, just as he had called, a year before, the Naulette jaw that of an idiot, because it disturbed his theory ; or again he appealed to precedents, exactly as if railways could not be, because they were not, before the discovery of steam-power ; and, moreover, the Lahr skull, found by M. Ami Boué in the loess of the Rhine valley ; the Engis skull, excavated by Schmerling from a cavern of the mammoth-age ; the Engisheim skull, found in the clay of the Rhine valley, and described by M. Faudel ; the celebrated Neanderthal skull ; the Olmo skull, the Clichy-Montmartre skull, as M. Broca remarked, are, if not precedents, at least all data and facts tending to the same demonstration—that the autochthones were not solely brachycephali. If M. Pruner Bey had argued upon solid ground, if, instead of systematically denying the consequences of the above-mentioned cases, taken separately or collectively, he had multiplied counterproofs, or only produced a single one, then the bones of Les Eyzies would not have proved so decisive against the theory of Retzius.

All the objections raised by M. Pruner-Bey were, one by one, met by M. Broca, who, besides reducing to nought his opponent’s arguments, and especially that founded on alleged rachitism, confirmed his views by going into more particulars than before, and altogether satisfied the Paris Society, who were unanimous—M. Pruner-Bey excepted—in acknowledging the soundness of his facts.

On the 16th of July, the discussion was continued by M. Bertillon, who summed up a very sound speech thus:—"On the question of shape, in anthropology, it is the measurements and numbers which are the indispensable characteristics of scientific truth, and not phrases and impressions. And upon that ground we have seen that the precise measurements taken by M. Broca do not permit us to class within the same group, as M. Pruner-Bey does, the skulls of Les Eyzies with those of the Esthonians." Here M. Pruner-Bey, never at a loss for new arguments, tried to maintain his assertions; but he was met by M. Lagneau, who, taking facts into consideration, said, "that the ethnography of western Europe cannot exclusively rest upon the Mongoloid family and the ancient dolichocephali, called Celts by M. Pruner-Bey. Three chief different races, at least, seem to have taken part in the formation of our prehistorical population. Not only is the ancient geographical division of Gaul into three people ethnographically distinct, attested by Strabo, Cæsar, and other authors, but the triple ethnical origin appears equally likely, when the documents furnished every year by the army recruiting *bureaux* are compared, as regards the very unequal territorial distribution of the exemptions for want of stature and for other infirmities."

Again, M. Pruner-Bey replied, this time briefly, without swerving from his line of defence, and M. Broca got up to close the long debate, once more convicting, we think, his learned opponent of inaccuracy on the score of rachitism, and of inconsistency on the score of Esthonian skulls; thus having the last word for science' sake. And we are glad of it, indeed; for a great fact has been established which brings anthropology one stage further towards the origin of man.

We sincerely congratulate M. Broca, and heartily rejoice that his immense labours, consummate skill, and indefatigable energy, found a field worthy of himself, wherein his qualities could be displayed all at the same time, for the benefit of science, and the delight of scientific men.

As to M. Pruner-Bey, who has been hundreds of times right against the whole world, he can, indeed, afford once to be wrong, or only mistaken, on evidence though it be; he can, above all, we feel certain, stand good-natured criticism from his English admirers.

At the meeting of the 2nd of July, 1868, M. Durand (de Gros) read a paper called "The Torsion of the Humerus, and the Animal Origins of Man," which gives anatomical proofs of Lamarck's system of transformation of species, and is a very interesting contribution to science.

The meeting of July 30 was mainly taken up by a brilliant discussion on Esthonian skulls, upon receipt of a letter from Herr Hermann Welcker on that subject. MM. Hamy, de Mortillet, Gaussin,

Bertrand, Lagneau, and Hallegnen, maintaining, against M. Pruner-Bey, opinions already implied or expressed in the discussion upon the skulls of Les Eyzies.

The paper upon "The Russian Element in Europe," by M. H. Martin, opens the first meeting after the vacation, Oct. 15, with another paper by M. Rochat, upon "The Degeneracy of certain Irish Races," a fact which M. Broca does not admit. He says: "The only effects observable in Ireland are but the ordinary effects of misery; namely, scrofula, diminution of stature, etc. These effects are rapid, but they are momentary; and they disappear as soon as the evil conditions which caused them disappear, the race promptly resuming all its attributes."

M. Broca, on presenting the Paris Society with bone fragments from a dolmen at Sainte-Suzanne (Sarthe), Nov. 5, declared he had recognised in them the same characteristics as those observed in the femurs of Les Eyzies.

In the number of the *Bulletins* ending the year 1868, M. Defert, at the end of his excellent digest of the London Society's labours, reminds the reader of Dr. Hunt's appeal to common sense in his paper on "Physio-Anthropology: "What Dr. Hunt wants is the study of Anthropology after the experimental method,—the method of facts, without preconceived ideas or theories of any kind."

This precept was acted upon by M. Dally in his beautiful paper, read at the meeting of the 19th of November, called "The Order of Primates and Transformism." In this treatise the author tries to prove that the anatomo-physiological distance which separates mankind from apes, taken in a mass, is smaller than that which separates some apes from others.

He first treats his subject physiologically, and afterwards anatomically. "The ancients and the moderns up to the last century," said he, in concluding, "could not form a right idea of organic gradation; they knew neither the anthropoids, nor the *Cebidæ*, nor the inferior human races, nor the fossils, and left a vast gap between man and the *Pithecidæ*, which they scarcely knew, or the cheiroptera, to which they assigned a rank unconformable to their organisation. The theological period of humanity attributed to man a supernatural or miraculous character; the metaphysical period separated him from the rest of nature; but the period of positivism at last shows his real place,—that of a family of the *Order Primates*. Physical science has taught us that nothing can come from nothing, and that forces incessantly transform themselves without loss in the measure of their effects; chemistry has shown us that the formation of a body resulted from new combinations of the same elements; biology reveals the

formation, with the same material, of tissue, the properties of which are distinct: comparative embryology reveals metamorphoses being pursued, during a long period, for several generations; botany proves that the adaptation to any medium produces considerable changes in the constituting parts of plants; Darwin, lastly, has demonstrated the spontaneous initial variation of organic beings,—a variation favoured, confirmed, and increased by the struggle for life and the selective reproduction."

But the Darwinism of M. Dally found a strong opposition on the part of MM. Giraldès and Alix. M. Giraldès showed that the author had omitted to compare the architecture of parts, and the conformation and functions of these parts; that he had hardly done more than give a sketchy comparison, and that between subjects entirely dissimilar,—taking adults here, young there; from here a primate, from there a lemurian, etc.

M. Alix said: "There are two ways of putting the question, according as the word difference is put in the singular or the plural. If the question is whether there are more differences between some men than between some anthropoids, the question is insoluble, because the number of differences can never be counted with a sufficiently rigorous accuracy. The other proposition, Whether there is more difference, is easier; for then by taking into account the subordination of characters, it may be judged whether the orang-outang, the gorilla, and the chimpanzee may be classified with men or with apes. This small orthographical detail is of great importance." And he went on showing that M. Dally had not been so scrupulous or so impartial in his anatomical inquiry as he might have been.

We have given an *aperçu* of these views, merely to show that the Paris scientific world is quite as divided as ours on the question of Darwinism; and that moreover the data upon which the application of the theory (whether it be right or wrong) to the genus *Homo*, are far from being collected as yet.

The *Bulletins* for the year 1868 are closed by a splendid paper, read, on December 17, by M. Sanson, upon Hybridity, the conclusion of which tends to prove that the criterion of species is to be found nowhere else than in fecundity. But in spite of the excellence of this paper, we must refer the reader to it; first, because it is hardly anthropological; and secondly, because want of space compels us to conclude this imperfect sketch.

Had we not already exceeded the space allowed us here, we should have noticed other papers by MM. Prunières, de Mortillet, Letourneau, Pommerol, Lartet, Bertillon, Duhousset, and some other members; as it is, however, we can only refer the reader to them.

Such, then, were the labours of our Paris brethren during the year 1868, a year, indeed, most fruitful both in great discoveries and numerous scientific treatises. In parting with them, therefore, we offer them our hearty congratulations for the past, and our sincere good wishes for the future.

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### PHYSICS AND METAPHYSICS.

By CHARLES BRAY.

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"All our conceptions are based on the implied postulate, that the world is as it appears. . . . The advance of knowledge consists in the substitution of accurate conceptions for natural ones."—*Man and his Dwelling-place*, by James Hinton.

"WHEN the person wha is spoken to dinna ken what the person wha speaks means, and when the person wha speaks dinna ken what he means himsel, that's metaphysics." This well-known definition is probably as true now as when it was first given. The main cause of its truth, as it seems to me, first lies in the want of common terms, and consequent disputes are thus not only unintelligible, but do not in all cases resemble "the communion of saints." The words soul and body, mind and spirit, knowing and being, matter and force, substance and properties, cause and effect, noumenon and phenomenon, conditioned and unconditioned, are all used in a different sense. And this is not surprising, as the object of the inquiry is to determine what these terms really *do* mean, and what *is* the sense that ought to be put upon them. In metaphysics each disputant has his own language, and all controversy ought to begin by mastering each other's dictionary. I propose to begin at the very beginning, and then to see if modern science has thrown any light on this subject.

Hume says, "We may observe that it is universally allowed by philosophers, and is, besides, pretty obvious of itself, that nothing is ever really present with the mind but its perceptions, or impressions, and ideas, and that external objects become known to us only by those perceptions they occasion. Now, since nothing is ever present to the mind but perception, and since all ideas are derived from something antecedent to the mind, it follows that it is impossible for us so much as to conceive or form an idea of anything specifically different from ideas and impressions. Let us fix our ideas out of ourselves as much as possible; let us chase our imaginations to the heavens, or to the utmost limit of the universe, we never really advance a step beyond

ourselves, nor can perceive any kind of existence but those perceptions which have appeared in that narrow compass."

This, however true, and, as Hume says, now "universally allowed by philosophers," is not, however, true to common apprehension, which still believes in an external world, exactly as it appears, and knows nothing of consciousness, and that the objects of knowledge are in reality not things, but ideas. But if, as Hume says, "external objects become known to us only by those perceptions they occasion", then we ought to be consistent in our inductions and deductions from this fact, and not attempt to raise whole systems on supposed knowledge beyond. Our own consciousness is all that is *known* to us, and all else is only more or less probable inference. Every external fact requires to be translated into the language of our thoughts. The longest chain of physical causation necessarily has its last link in the mind. The bridge to be built, or the road to be travelled, is not from physics to metaphysics, but from metaphysics to physics. The *ego* produces the *non-ego*. This, as I have said, is not the common apprehension: no doubt the first question is, What is the world without? The next, What am I? and thus on reflection we come to consider the medium or instrument by which the world becomes known to us, and which we call the mind, but which in reality is merely our consciousness. We ask, then, what is this consciousness? Whence comes it, or what is the cause of it? and lastly, What is the good of it—what is the use of it—what is the object of it? Here we have the questions of being or existence, of efficient cause or final cause, all questions of pure metaphysics, all requiring to be answered before physics can be properly pursued; for as we know of an external world only through the medium of our consciousness, how do we know that it tells us truly, or to what extent its indications may be trusted?

What, then, is consciousness? It is a succession of varied feelings and ideas, and this only; differing greatly in intensity. We call this variety of sentience by the names of propensity, sentiment, sensation, ideas, perception, conception, memory, imagination, and judgment. We speak of ideas and feelings passing through the mind, but there is no evidence of their passing through anything. The aggregate of these ideas and feelings *are the mind*, and there is nothing else. Consciousness is supposed to be a general term denoting states of mind, but mind has no existence in itself, but consists of these "states", or stream, or succession of thoughts and feelings. Consciousness, and sentience or feeling, in one sense are the same, but what is generally meant by the term is the action of one faculty upon another, that is, reflection on consciousness. With Dr. T. Brown and James Mill, to have a feeling, and to be conscious of that feeling, is

the same thing, and this may be said to be the case with animals generally, who have feelings, but do not attend to them ; but with J. S. Mill, it is one thing to have a feeling, and another to recognise and reflect upon it, and refer it to one's-self, and to the series that make up our sentient existence. Self-consciousness, however, is when another intuitional feeling besides reflection is associated with the train of thought. This induces us to refer all our states to the "I," or self, and is an element in our belief in personality.

But what do we *know* of consciousness ? Being conscious and knowing are the same things. Consciousness in its several states of thought and feeling, of pleasure and pain, is the only real and absolute knowledge we have ; all else is relative. Metaphysics we *know*, physics we know only in the relation to metaphysics, and as the facts and laws of physics are translated into ideas, the language of our consciousness. Phenomena and their laws are known to us but as parts of our consciousness. Much is said about observation and facts as opposed to mere thought in apparent forgetfulness of this truth, that every fact must become a thought before we can know it.

But whence comes this consciousness ? What is the cause of it ? The common answer is, that it is the action of the soul or of the mind ; but we do not find either soul or mind in our consciousness, and that is all of which we have any knowledge ; that is, if there is anything more than the succession of our consciousness, soul, or mind or spirit, consciousness does not belong to it. We find, however, a body, and that body has a brain, and pressure on that brain puts a stop to consciousness at once, and on further inquiry we find that whatever affects the brain affects our consciousness, and consequently we are obliged to come to the conclusion that there is a direct and immediate connection between them. Upon this philosophers are pretty well agreed, but as regards the nature of the connection there is at present very little agreement, if, indeed, there is any definite opinion at all. "If there is one thing clear about the progress of modern science," says Professor Huxley, "it is the tendency to reduce all scientific problems, except those that are purely mathematical, to problems of molecular physics—that is to say, to the attractions, repulsions, motions, and co-ordination of the ultimate particles of matter. Social phenomena are the results of the interaction of the components of society, or men, with one another and the surrounding universe. But, in the language of physical science, which, by the nature of the case is materialistic, the actions of men, so far as they are recognisable by science, are the results of molecular changes in the matter of which they are composed ; and, in the long run, these must come into the hands of the physicist."\* Professor Tyndall

\* "The Scientific Aspects of Positivism."—*Fortnightly Review*, June, 1869.

says: "I hardly imagine that any profound scientific thinker, who has reflected upon the subject, exists who would not admit the extreme probability of the hypothesis, that for every act of consciousness, whether in the domain of sense, of thought, or of emotion, a certain definite molecular condition is set up in the brain ; that this relation of physics to consciousness is invariable, so that, given the state of the brain, the corresponding thought or feeling might be inferred ; or given the thought or feeling, the corresponding state of the brain might be inferred."\* From this acknowledged fact the erroneous conclusion is often drawn that thought is a phenomenon, or mode of action, of the brain, but although consciousness is connected with molecular motion in the brain, yet that motion does not constitute it, but is something separate and distinct, and which may be exhibited apart from that motion. As Professor Tyndall says, "molecular forces determine the *form* only which the solar energy will assume." When we say that thought is a function of the brain, we do not mean that it is the motion of the brain, but the power of the brain ; that is, it is with the cause of the motion, and not the motion itself that we have to deal. Motion is nothing in itself, that is, no entity ; it is merely the transference of substance or entity from one point in space to another ; it is the cause of this, or agent, with concerns us, and this we call Force.

To say that motion is a condition of matter, and that one body conditions another, is no explanation, for it still leaves unexplained *how* does it condition it ? Let us take a simple illustration. A grindstone is set in motion, and we are told that the movement is something distinct from the grindstone, and that there is nothing more real than "movement." Real,—but no-thing, *i. e.*, no entity ; but how can a thing be real which is no-thing, *i. e.*, nothing ? A moving grindstone is simply a grindstone moving, as distinguished from a grindstone at rest ; it is simply the same grindstone in another or altered condition. Motion is mere change of place, and adds nothing, and takes nothing away from a body ; but the cause of the motion does. When the grindstone was set in motion, something was added to it which is indestructible, and the motion is simply the indication of its presence. It is no part of the grindstone, and may be passed on, the grindstone simply determining the mode in which it is passed on. This something we call *force*. But whence was it derived ? If the stone was set in motion by the hand, the force came from the food, which came from the sun ; if by steam, from the coal, which again came from the sun ; if from falling water, again from the sun which lifted the water. This force is a measureable quantity ; it is measured by its ability, or by what it can do. It is the same with

\* "Opening Address at Norwich," 1868.

the function, or power, or force of the brain. It is derived from the food, and after passing through various manipulations which intensify it, it enters the brain, producing what is called its molecular motion, and passing on as consciousness, as special thought and feeling, and each thought and feeling consuming an amount of force in proportion to its intensity. This thought or feeling is not a power of the brain, the force only passes through, the brain conditions it, or turns it into thought or feeling. Thus Herbert Spencer says truly, "That no idea or feeling arises, save as a result of some physical force expended in producing it, is fast becoming a common-place of science; and whoever truly weighs the evidence will see that nothing but an overwhelming bias in favour of a preconceived theory can explain its non-acceptance"; and Dr. Henry Maudsley says, "Mind is the highest development of force, and to its existence all the lower natural forces are indispensably prerequisite."\* Dr. Tyndall, however, says, "The passage from the physics of the brain to the corresponding facts of consciousness, is unthinkable." Of course that which we believe to be the unconscious force of the brain, can never think how it is it begins to think, is true enough; but in reality we have no such passage to make. Consciousness is all we know, or can know, and we cannot know, therefore, of anything differing from it; and we may reasonably object, therefore, to any argument based upon any supposed difference between mental and physical force, and to such terms as "physical" forces, and lower "natural forces", when they are made to imply a difference in *essence*, of which we can know nothing.†

It is probable that there is no unconscious force, as I shall endeavour to show, and we are certainly not justified in affirming positively that there is, as conscious force in all we know. Dr. Böchner says, "It is by the brain that we ascend from matter to mind." Now, the force that becomes conscious in the brain is not matter, but what is usually called spirit. There is no instance in which we can be said to ascend from matter to mind. There is the transmitted vital spark, and the forces that bring it into activity. Dr. Tyndall truly says, "Given the state of the brain, the corresponding thought or feeling

\* *The Physiology and Pathology of the Mind*, p. 60.

† Hume says, "We have no perfect idea of anything, but a perception. A substance is entirely different from a perception. We have, therefore, no idea of a substance. Inhesion in something is supposed to be requisite to support the existence of our perceptions. Nothing appears requisite to support the existence of our perceptions. We have, therefore, no idea of inhesion. What possibility, then, of answering the question, *Whether perceptions inhere in a material or immaterial substance*, when we do not so much as understand the meaning of the question?"—*A Treatise of Human Nature*, vol. i, p. 311.

may be inferred," and *vice versa*. It is found that our varied consciousness of thought and feeling is connected with different parts of the brain, with intensity proportioned to the size and structure of the part, and to the extra force thereby employed. Let us take a less simple illustration of our meaning than the one I have given of the grindstone. Let us take a kaleidoscope. With each turn we get a new form. Now, what is the result. Let us never forget that force is indestructible ; now, what force is there, and what has become of it? The force required for the turning of the instrument has probably passed into surrounding objects, "the form"—the phenomenon, the appearance—the result of the action, passes away never to return, but the force that gave rise to it, or that underlies it, is still in existence. Where? Certain waves of ether, or force, strike upon the glass, and producing a reaction of 477 millions of millions of waves upon the retina in a second, set the brain in motion, and produce the sensation which we call red ; other parts of the glass produce 577 millions of millions in a second, producing the sensation of green, and 699 millions of millions produce violet, &c. Colour, then, is a sensation or idea, in the object it is a reactionary force, which passing through millions of millions of waves, becomes a sensation of red, green, or violet. But what then becomes of it? It is still a force, and a force that can produce 699 millions of millions of wave motions in a second must be a very strong one. This force, then, first sets other portions of the brain in motion, which gives us ideas of form, size, position, &c., for we cannot think of colour apart from extension and figure, or of more than one figure without the idea of relative position, and it is from this mental state we derive our idea of space ; and in this way a few simple forces received through our five senses from without, by the aid of the cunning machinery of the brain, are created into a whole world which we rather foolishly believe to have a real existence independently of the sensations, ideas, and feelings of which it is composed. This sensation of colour, as we perceive, is within us, and not attached to the object, as most people believe ; it is correlated or transformed force, reflected from, and modified by the object ; some objects in which we can perceive no more difference than in bits of glass producing some millions of millions of vibrations more than others. As we started by affirming, the sensation, as a part of our consciousness, is all we know, and, as Hume says, "we can never really advance a step beyond", for what possible resemblance can a sensation of colour have to the motion of the brain, or to the waves of ether, or to the reflected force from the object that caused those waves, and which is the only relation between the object and the sensation ? It is impossible, then, that in any sense we can know things them-

selves, for we never come near them ; there is always a long chain of antecedent and consequent between ; the action of the brain, the action of the sense, the action of the atmosphere or the ether upon that, and the action of the object upon them ; and how, therefore, the object affects the atmosphere or ether, and through them us, is all we know, or can know : *i.e.*, all the knowledge we can attain of things without our consciousness of the *non-ego*, is simply how they affect, not us even, but other things a long way off. The world is created by a correlation of forces in the brain, which forces are received in different quantities, and are variously modified before they reach the brain, and the study of these quantities and modifications, which we call phenomena and their laws, and which are known to us only as they are further changed and form part of our consciousness, is science. Mind, then, is correlated force : a few simple impressions are received through the senses, which are worked up by the complicated machinery of the brain into what we intuitively believe to be the world without us. A real world without consciousness would be the same as no world at all ; and a world existing only in our consciousness is quite as good as if it had objective reality, and requires quite as much wisdom and power in its creation.

But what is Force ? It is time we answered that question. Force is everything. It is known to us only as the ability or power to produce certain changes ; but by force I mean the entity to which this ability or power belongs, from which it is no more separable than motion from the thing moving. It is not motion, but the cause of motion. It is not the action, but the agent. Deceived by appearance, we erroneously suppose force to result from the action of matter, whereas the action of matter in all cases is the result of force. We think the power is in the motion, but motion is merely the sign of the presence of the force. In the instance we have given, the grindstone, its working force seems to be in the motion, but the free force has been transmitted to the grindstone, and as soon as that has been used up, that is, has passed on, its grinding power and motion cease. To say in this case that the force results from the action of matter, is a delusion of the senses—a vulgar error. It is altogether illogical ; it is confounding the entity with its mode of action—the cause with the effect, the phenomenon with the noumenon, the motion with the thing moving. It is equally an error to confound the action or molecular motion of the brain with thought. The brain, like the grindstone, simply passes the force, or mental power, on in the peculiar condition known to us as consciousness ; the force is not the creation or the result of the action of the brain ; it existed before it entered the brain, and it exists afterwards. We are told “to suppose mental phe-

nomena to be anything but phenomena is nonsense"; the nonsense must be in the supposition that phenomena are separable from noumena, or motion from the thing moving. We are told that "force viewed separately from matter is nothing": this is merely a repetition of the same error, and is only true in one sense, viz., that force cannot be viewed separately from itself, for matter is force. "The phenomenon called matter arises from two forces, the one acting towards, and the other from a point or centre".\* The existence of matter is based upon its supposed extension and solidity, but extension is an idea inseparable, as we have seen, from the sensation of colour, and solidity is in the same way based upon the sense of feeling, and that is mere repulsion—resistance to motion. J. S. Mill says, "when the question arises whether something that affects our senses in a peculiar way is, or is not matter, what seems always to be meant is, does it offer any, however trifling, resistance to motion?" In fact, solidity is a mere mental hypothesis invented in order to explain resistance. Huxley says, "every form is force visible; a form of rest is a balance of forces; a form undergoing change is the predominance of one over others."

Science now reduces all things to "the attractions, repulsions, motions, and co-ordination of the ultimate particles of matter," but these ultimate particles of matter—molecules and atoms, are the unknown quantities, the *x*, *y*, of certain forces,—they are creatures of the imagination, and as pure assumptions as the spirits of the spiritualists. If force viewed separately from matter is nothing, what is it fills the interstices between these supposed atoms? Sir Isaac Newton supposed that all these atoms in our globe, if they could be brought together, would not occupy the space of a square inch; what, then, is the rest? in fact, what is compressibility? What draws the needle to the magnet? What fills the space between star and star, and draws each to the other? What draws the waters of the ocean to the moon? Is it the moon, at 240,000 miles away, or something that really exists between and unites the two? It is true that force may not be evident to our senses, except through its connection with what we call matter; but we mean by force the principle of action, the *unseen cause* of all change or motion, and as everything is in motion, so force is the universal interpenetrating medium throughout the universe. The forces at present known to us we call heat, light, electricity, galvanism, chemical affinity, attraction, and repulsion,—these, in their modes of action and manifestations, produce half the phenomena around us; the forces of life and mind produce the other half. These forces are indestructible and persistent, and as they pass readily into each other, we reasonably infer that they are in reality only one and the same

\* *The Philosophy of Theism*, p. 73.

force. But force, and cause, and the ability to produce a change, are the same thing: but a cause implies two things,—power or ability, and direction or determination; for every change has a purpose, a direction towards a definite object, and the force then includes both power and intelligence. This is not necessarily conscious intelligence. It may very reasonably be asked, what is *unconscious* intelligence? In automatic action we have the power, and all the effects of intelligence, where consciousness has ceased to attend it. We know nothing of mind in its essence, and can judge only by analogy as to its mode of action; and if, therefore, we may judge of universal mind by the small glimmer that appears in our own consciousness, we find conscious action constantly passing by repetition into unconscious; what at first requires a separate and distinct volition, goes on now without. Secondary Cause, or Natural Law, is thus simply automatic action of Universal Mind. That which originally required a distinct *conscious* volition, has passed, in the ages, into the fixed order of nature. We have thus intelligent *action* without consciousness or volition.\*

There is no bridge, then, from physics to metaphysics,—there is no

\* Moleschott tells us very positively that "Force is not an impelling god, not an essence separate from the material substratum of things. A force not united to matter, but floating freely above it, is an idle conception. Nitrogen, carbon, hydrogen, oxygen, sulphur, and phosphorus, possess their inherent qualities from eternity." Now, since Faraday's time, philosophers have agreed to drop this "material substratum of things", but admit that nitrogen, carbon, hydrogen, oxygen, etc., show certain definite and determinate forces, certain likes and antipathies; the much higher probability is that their definite action, to fulfil determinate ends, was once the result of conscious volition, now become automatic. "Qualities are eternal, inalienable, and untransferable," says Dubois-Reymond; and Dr. Büchner says, "it seems incomprehensible how so simple and necessary a conception as that of the eternity of the world could ever have been lost to the mind." Now, instead of this being a simple and necessary conception, it is an impossible conception: our consciousness tells us nothing of the eternal; and in point of fact, there is no more reason to believe that the world was eternal, or without origin, than organic beings; and we know they began to be.

Again, Dubois-Reymond tells us that "matter is not like a carriage to which the forces, like horses, can be put and again removed from." Now, we have seen, in the instance I have given, that the forces were put to the grindstone and again removed from it. Force is in no case a *mere property of matter*; it is received from without and passes on. A body at rest will continue at rest for ever, until the horses are put on, i.e., until external force is applied to it; or, to put this first law of motion shortly, all forces will continue in unvarying action until other force is applied to them. "Every giving off of forces has, for its necessary effect, the storing up of force in equal amount elsewhere;" or, as Faraday puts it, "what disappears in one place must reappear in another." It must, therefore, have a separate existence. Büchner says, "all the so-called imponderables, such as light,

road that way ; the only way is from metaphysics to physics ; for all force is mental force, such "will-power" as we are conscious of exercising in our small individuality. Universal Mind passes into unconscious action in general law, and again becomes conscious in the brain of percipient beings, in brains so modified that each sentient existence has its own special world, created by the correlation of the same external force in its own brain and nervous system. "The old speculations of philosophy, which cut the ground from materialism by showing how little we know of matter, are now being daily reinforced by the subtle analysis of the physiologist, the chemist, and the electrician. Under that analysis, matter dissolves and disappears, surviving only as the phenomena of force ; which again is seen converging along all its lines to some common centre, sloping through darkness up to God."\*

Berkeley denied the existence of an external world, and declared that our perceptions were mere ideas evoked in the mind by Deity ; and we find that each brain creates its own world by the correlation of force from without, and as its consciousness is modified by its own structure. But force or power without cannot be separated from that of which it is the force or power,—that is, of Deity. Dr. Thomas Brown holds that the entity that has this ability *is* this ability ; and Spinoza says, "God's power is the same as his essence"; and thus all

heat, electricity, magnetism, etc., are neither more nor less than changes in the aggregate state of matter,—changes which, almost like contagion, are transmitted from body to body." The imponderables, he says, are changes, that is, motion, and he commits the common error of confounding motion with its cause. It is with that which "almost like contagion is transmitted from body to body" with which we have to do, and which, if it were not a something in itself, could not be so transmitted. He also says, "Nothing but the changes which we perceive in matter, by means of our senses, could ever give us any notion as to the existence of powers which we qualify by the name of *force*. Any knowledge of them by other means is impossible." This may be very true ; but that is no reason why we should confound the mere sign with the thing signified,—the changes with their cause. Again, he tells us, "No real naturalist doubts that forces are but qualities, or motions of matter." Now, motion is a condition, but qualities are forces or powers ; as J. S. Mill says, "What we term the properties of an object are the powers it exerts of producing sensations in our consciousness." With respect to these "changes" by which force is manifest to us, Mr. R. T. Wyld says : "Were force freed from this connexion (with physical body), it would attain immediate equilibrium, and the physical universe would instantly cease to exist,—action and reaction, momentum and inertia, resistance and localised force being at end, physical law and the physical world would be at an end with them ; for the physical world consists but of the antagonism of contending forces."—*On Free An-atomic and Transmissible Power.*

\* *The Reign of Law.* By the Duke of Argyll.

manifestations are manifestations of the one Supreme Power, and all change "the varied God." Berkeley, in denying the existence of an external world, did not deny that there was *nothing* external; he admitted God's power, both conscious and automatic.

Let us now consider what the bearing of these principles is upon certain physio-metaphysical questions of long standing. "Locke had shown that all our knowledge was dependent upon experience. Berkeley had shown that we had *no* experience of an external world independent of perception; nor could we have any such experience. He pronounced matter to be a figment. Hume took up the line where Berkeley had cast it, and flung it once more into the deep sea, endeavouring to fathom the mysteries of being. Probing deeper in the direction Berkeley had taken, he found not only was matter a figment, mind was a figment also. If the occult substratum, which men had inferred to explain material phenomena, could be denied, because not founded on experience; so also, said Hume, must we deny the occult substratum (mind) which men have inferred to explain mental phenomena. . . . Matter is but a collection of impressions. Mind is but a succession of impressions and ideas."<sup>\*</sup> This was felt to be unanswerable; but then it was not to be judged by its truth, but by its supposed consequences; it led to scepticism, whatever that may be, and the efforts of almost all metaphysicians since have been directed to the evasion of this truth. Lewes says, "Remark, also, that Hume's scepticism, though it reduces philosophy to a singular dilemma, viz., that of either refuting his sceptical arguments, or of declaring itself and its pretensions to be vain and baseless, nevertheless, affects in no other way the ordinary judgments or actions of mankind."<sup>†</sup> Now, the only dilemma to which philosophy was reduced was, that it had found a truth that it did not then know how to use; but if, instead of being frightened, we had allowed it "to affect our ordinary judgments and actions", it would have placed mental science on the same firm basis of induction as physical. We now know that "no idea or feeling arises, save as the result of some physical force expended in producing it;" that each idea and feeling is a separate correlation of force, and that the mind is merely, as Hume says, a succession of those ideas and feelings. There is but one entity in the universe, which Spinoza called Substance and physicists call Force. Mind is force, matter is force; consciousness tells us nothing of their essence, but they are the same in their manifestations and obey the same laws. The strongest force prevails equally in the mind as in the world without. The will is but the trigger that lets off this force in the direction of the object aimed at. The

\* Lewes's *Biographical History of Philosophy*, p. 481.    † Idem.

strength of the mental force is in proportion to the size of the organ through which it passes on its road to consciousness.

But mind is not a mode of action or motion—it is an entity itself; it is so much force, which is indestructible ; it may change its form, but cannot cease to be. Each thought and feeling is a separate, independent, indestructible existence. Mind, however, has no existence apart from these thoughts and feelings. It is not mind, then, that is indestructible, but these thoughts and feelings. Hume says, “ ‘Tis still true, that every distinct perception, which enters into the composition of the mind, is a distinct existence, and is different, and distinguishable, and separable from every other perception, either contemporary or successive.” The question is, what becomes of those “distinct existences”? Our own ideas of the world—our thoughts and feelings—are supposed to exist only in the percipient, in the “ego,” but the force of which the ideas are composed existed separately from the “ego,” and may, indeed must, do so again. That this mental, or voluntary, or will power, is in great part again converted into physical force, as heat and muscular motion, there can be no doubt.” We have, as Mr. R. S. Wyld says, “a direct experience that the amount of physical power obtained is, *ceteris paribus*, in constant proportion to the amount of the mental effort which we are conscious of exerting in producing this physical power.”\* Certain narcotics and stimulants act directly upon the mind, greatly intensifying its action, and these immediately show themselves again in the expression of the eye, and in every muscle of the body. Tobacco suspends mental activity ; opium and hashish greatly increase it. A snake, as often tried by experiment, when sluggish, and only just awake, takes half-an-hour to kill its prey ; but when excited and made angry its venom kills instantly. Illustrations of the direct connection between mental and physical force are everywhere around us, only little attention has yet been called to them. The torpedo strikes its prey at a distance of some feet. Here is mental force, or voluntary will power acting at a distance through the medium of the water ; and Professor Owen tells us that the amæba draws its prey towards it as rubbed amber draws light substances. The mesmerist by voluntary effort can act upon others at great distance, through what medium he does not at present know, or whether any medium is required other than the all-pervading force around. Still the force that passes into consciousness in the brain is at present by no means sufficiently accounted for. I know that it is the orthodox opinion among men of science that “thought cannot exist without brain ;” but this proposition, I hold, is by no means

\* Paper read before the Royal Society of Edinburgh, “On Free, Anatomic, or Transmissible Power,” May 3rd, 1869.

proved. Thought is not a motion of the brain, or a mere mode of action at all, for "it is force which causes the movement, and not the movement which causes the force"; and it must exist as force after the movement of the brain ceases, and why not as mental or conscious force? And if so, the question is what becomes of it? This inquiry becomes deeply interesting when at the present time we have many scientific men declaring that they recognise, in so called spiritual manifestations, both power and intelligence apart from brain. What is "thought reading"? it cannot be a mere recognition of the action of the brain. I have seen the number on three watches, consisting of five figures each, told successively by a mesmerised child, when they could be read only in the mind of the operator: for until there was light enough for him to see they could not be told by the child. There could be no possible doubt about this case, and at present we have no means of explaining it. Here we have a separate and distinct "form" of figures, not a mere action of the brain, recognised by one person in the mind of another. A perception or idea then is a positive entity; and again, I say, what becomes of all those ideas that pass through the brain? Do they retain consciousness or merely possess the power to create the same ideas in others? Are they packed up somewhere in the brain for future use? or have we souls made of them? As the body is made of protoplasms, or infinitely small vital cells, so may our spiritual body be made up of these thoughts and feelings.

I am told that Mr. C. F. Varley, the electrician, who sees ghosts, thinks that all the thoughts of our lives make up the body of the spirits. If a single drop of water may contain five hundred millions of animalcules—living creatures, and that these "have organs of locomotion, the mode of which leaves no doubt that they each possess sensation and will, and that consequently they must have organs and tissues accordingly," there must be plenty of room to pack any amount of *ideas* in the brain.

Professor Owen, in the last volume *On the Anatomy of Vertebrates*, summing up his general conclusions, says, "Life is a sound expressing the sum of living phenomena." "These phenomena are modes of force." "Into these modes of force other modes of force have passed from potential to active states." Nerve force and electric force are convertible; and, asks the Professor, "may there not be conversion of force, magnetic, electric, thermotic, nervous? Is not thought to the brain what electricity is to the battery? Nerve force rises from reflex acts to volitional acts: the quiver of the pricked muscle to the resolve to write a book. With the size and complexity of the brain centres, from Aztecs to Europeans, correspond the intellect and will." The Professor, subsequently, writing about what he calls "thought-force," says, "if lines of thought-force were visible, the ghost (of Samuel) would not

therefore be more material." May, then, thought-force ever become visible? It is evident Professor Owen does not think it impossible. Does what is called by spiritualists, a "medium," supply the conditions?\*

If consciousness or thought, as Professor Owen says, "is to the brain what electricity is to the battery," no one believes that electricity ceases to exist when discharged from the battery, and yet the positive school of physicists always reason as if thought being discharged ceased to exist. Thus Dr. Louis Büchner, in *Matter and Force*, says, "The brain is, then, only the carrier and the source, or rather the *sole cause* of the spirit, or thought; but not the organ that secretes it. It produces something which is not materially permanent, but which consumes itself in the moment of its production." How the brain can be merely the carrier of that of which it is the source or sole cause, or how *something consumes itself*, is not clear, but this passage furnishes a pretty fair sample of the Doctor's ordinary style of reasoning.

The force that works the body is derived from the food, and is originally derived from the sun, in the divorce of the carbon from the oxygen in plants; and as "nerve force and electric force are convertible," no doubt we are sensibly alive to the electric states around us. Temperature does not affect us as it does the thermometer, but according to the electric condition of the atmosphere. We often *feel* colder with the thermometer at 50° than at 40°. The *Spectator* (July 3, 1869), speaking of the intimate relation between the sun's spots and perturbations and the magnetic currents of our own earth, says, "Could we really establish any periodic law of electric excitement on the earth, it would not be irrational, but in the highest degree rational, to expect marked human phenomena in connection with it—either a great concurrent depression or a great concurrent stimulus to the energies of the human brain. . . . . In point of fact, it is by no means impossible that the issues of peace or war, of a financial crisis, or a religious agitation, may be closely bound up with these phenomena."

\* A Mr. Munder of Boston, now of 630, Broadway, New York, was put upon his trial last spring for obtaining money upon the false pretence of taking spirit photographs. The trial lasted four days and he was acquitted, as his brother photographers, after every facility offered to them for investigation, had failed to detect any imposition. The *New York Sun* of February 26, 1869, reports the case at considerable length. The reporter to this paper says he watched the process from beginning to end. After various sittings, with various results, always taking care that the glass was well cleaned and polished, "he thought he would try the effect of calling to his mind the appearance of his father, as he looked just before he died, some eleven years ago. This time the negative gave a face in profile rather dim, but in general outline, he must confess, very like his father, as he thought of him."

The force supplied to our organism is a definite quantity, and it has to work the whole machine ; people who spend much time out of doors are ordinarily not great thinkers, and thinking and digesting cannot go actively on together, but the most important vital process is the putting in the new material to replace the old and worn out, and while this is going on the force to the brain is turned off and consciousness ceases in what we call sleep.\*

Dreaming is the consequence of the partial supply of force to the brain, some parts of it being thus brought into activity while others are asleep. The greatest incongruity in thought and feeling is the consequence, and yet the world of our dreams is quite as real to us as that of our waking hours. Sometimes, the force being absent from other parts of the brain, is supplied in unusual quantities to the intellectual faculties, and there is greater intellectual vigour than when awake.

Having seen, then, Whence comes Consciousness, we have now to inquire, What is the object of it? This brings us face to face with final cause, and the question is, Do we know anything, or can we know anything of final cause? The *Athenaeum*, in its review of Prof. Owen (July 17, 1869), says, "long ago philosophers have proved both final causes, and innate ideas, and tendencies to be mere assumptions." Dr. Büchner says "the motion of matter is as eternal as matter itself. Why matter assumed a definite motion at a definite time is as yet unknown to us;" but if matter ever *began* to move towards any definite aim, this is admitting voluntary action and intelligence, which I think the Doctor denies. The question then is what was the object when matter began to move towards the production of organised beings? Is it as the Doctor says unknown to us? A world without consciousness is practically non-existent—the same as no world at all. The production of consciousness, then, is more desirable than the production of a world, but consciousness that was merely cognizant and took no interest would be no better than none at all; it must be either pleasurable or painful. Now no one desires a painful consciousness, and a pleasurable consciousness therefore is the only desirable

\* Mr. Charles Moore, in an Essay "On Going to Sleep," brings together, from different quarters, various facts which appear to him to justify the conclusion that a contraction of the cerebral arteries, shutting off to some extent the supply of blood to the brain, is the physical occasion of sleep; this contraction being due to the unimpeded energy of the sympathetic ganglia which comes into play when the inhibitory action of the brain upon them is withdrawn. He conjectures, also, that states of somnambulism and double consciousness may be produced by the separate contraction of particular arteries, the area of the brain dependent upon other arteries not being asleep.

end in the production of sensitive organised creatures. This is the final cause ; this is " why matter assumed a definite motion at a definite time," and things are right or wrong as they tend towards this object, that is, towards pleasurable consciousness. Alphonso the Wise of Castile constructed the Alphonsine Tables on the Ptolemaic hypothesis, that the sun went round the earth, then universally received, but he suspected there was something wrong, and ventured to suggest that if the Creator had consulted him, he should have recommended a solar system far more simple and beautiful—with the sun in the centre, etc. So theologians now make man the centre of their system, making everything to revolve round him, and when they find things do not square with this hypothesis, they think it a very bungling contrivance, and make another world on the pattern of what they think this ought to have been if it had not been spoilt. The "plan" is evidently to produce the largest amount of pleasurable sensation, and not to flatter man's pride as the lord of creation ; he is but a small part of a much larger system, even on this planet, and is moved by the same laws as all the rest of the sensitive creation, and, whatever he may think, he makes rather a ridiculous figure strutting about in his borrowed plumes, regardless of the wires or natural laws by which he is pulled, and at present in utter ignorance even of their existence. The world was inhabited hundreds of thousands of years before he came upon it, and at this time there is a whole Ocean world, and world within world besides, of sensitive existences in which he can take no part : a fly with its hundred eyes sees things differently to us, and fortunately its tastes, particularly its gustative ones, are different to ours. The world, as we conceive of it, is not a reality ; each creature creates its own world and carries it about in its own head ; outside itself there is nothing but the play of forces on the nervous centres of each being. This creates a thousand worlds adapted to the different wants of each, and is so much better, therefore, than if it had objective reality ; and man stupidly thinks it was all made for him, and that the way these forces affect him is the absolute measure of truth : whereas a very few only of the forces around him reach him through his five senses or otherwise, and produce those impressions and ideas which are sufficient to guide him towards the objects of his being, towards his *real* world—that of his pleasures and pains, and which he calls his moral world. In reality he knows very little indeed of all that is going on without him, as he is cognizant only of the influences that can penetrate through his thick skin ; and whole worlds of beings may exist *without* his intellectual ken. Locke, however, says truly that " how short soever our knowledge may be of a universal or perfect comprehension of whatever is, it yet secures our

great concernment ;" and again, "as to myself, I think God has given me assurance enough as to the existence of things without me ; since, by their different application, I can produce in myself both pleasure and pain, which is one great concernment of my present state." If our faculties, then, are few and limited, and not designed to penetrate into the inward essence and constitution of things, they are yet sufficient for our purpose, the use of our intellectual consciousness being not to teach absolute truth, but to guide us towards our wants, which in their fulfilment are always pleasurable, and thus contribute towards the stock of happiness in the world.

The world, then, is created within us. Certain forces derived from the food set the brain in motion, and other forces from without, coming through the senses, act upon these, and produce within us perception, or ideas, or nervous impressions of colour, form, size, a sense of resistance or weight, order, number, relative position, motion, likeness and unlikeness, and connection. These are called ideas of Simple and Relative perception, and Reflective Faculties. Simple ideas are real entities, formed or conditioned by the brain, and having no resemblance to anything out of the mind, or in the world : these simple ideas are by other faculties of the mind worked up into our conception of the world: for what would the world be without colour, or form, or size, etc.? and yet colour, form, and size, etc., are ideas or feelings, not things.

Properties, which we call of matter, are separate and distinct forces, but they are united by association in the mind, and rarely act singly, one generally calling the other into activity. Unity is also given to them in the mind, that is, by the faculty of Individuality, and we say these properties belong to body or matter. The same faculty individualises or gives unity to our separate ideas and feelings, and we say they belong to the mind, and more, we individualise each separate act of power or ability, dress this image in our attributes, and thus create a god after our own likeness, with our passions and modes of thought.

It is to this unity of body and mind, which is a mere form of thought, to which we give the name of "I," and which assumes importance in proportion as it is associated with more or less of the feeling of self-esteem. All that is meant by this "Ego" is the succession of ideas and feelings which constitutes consciousness. "I am," means only, these ideas and feelings are. The percipient, as when we say "I perceive," is the action of one class of faculties upon the others—it is reflection on consciousness, *i. e.*, on perception. It is this also that accounts for the unity of consciousness; for although our ideas and feelings are simultaneously various, the reflective faculty that attends to them is one, and they can therefore only be attended to one at a time, whether they be simple or complex.

The sequence and variation of our consciousness, and which we call modes of action of the mind, are divided into Perception, Conception, Memory, Imagination, and Judgment. The first of these—perception, is composed of the force within and the force from without, and therefore has a double intensity to either of the others, which proceed from the action of the brain alone without the sense. Intensity of thought and feeling is always in proportion to the amount of force expended in producing it, and this furnishes a good criterion of externality, that is, of the difference between the ideas we receive from without and those that are the produce of the mind alone. The external world has thus double the reality of mere ideas; a child lives a life of sensation and perception, an old man one of ideas. The difference between Primary and Secondary qualities is not that generally recognised by metaphysicians between colour and extension, &c., as the latter is as much in the mind as the former, but between the ideas of simple and relative perception, that is, between the ideas received directly from without and those manufactured in the mind out of these.

Belief—does it belong to the intellect, the emotions, or the will? James Mill resolves it into purely intellectual elements, but it is a feeling,—as Hume says, an act of the sensitive part of our nature, rather than of the cogitative, and we necessarily believe in the intuitions of our faculties. We take the results of their action for granted as fundamental truths, and as nature obliges us to eat without reasoning upon its necessity, so she obliges us to believe what is equally necessary for our action and well being, without reference to its absolute truth or even speculative reasonings. We reason and doubt afterwards, and begin to suspect that our faculties do not always tell us the truth. We believe in the real existence of the external world of our consciousness, and do not doubt till we find it is created within us. We believe in matter and in mind, and not in a correlation of forces or manifestation of Divine Power. We believe that every effect has a cause, but that is no reason why it should be true; there may be only sequence. We believe in Space as an objective reality, when, like motion, it is nothing in itself—it is that in which an entity exists, and is as inseparable from the entity as motion from the thing moving, or power from that of which it is the power.

As to the *necessary* connection between cause and effect, of unalterable laws, of the immutability of the laws of nature, consciousness tells us nothing about this. The higher probability is that this connection has been established for a purpose, and will continue as long as that purpose is required. J. S. Mill says, “Any *must* in this case, any necessity, other than the unconditional universality of the fact, we know nothing of . . . All I know is, that it always does.” Reason is based upon the invariableness, upon the knowledge that what has

taken place, in the same circumstances and under the same conditions, will take place again. Law, in my opinion, as I have said before, is automatic Will-power, and changeable should circumstances or conditions require. Oersted says, "the world is governed by an eternal reason, which makes known to us its actions by unalterable laws." I object to such terms as "eternal" and "unalterable" as we can know nothing about them. As far as we know, the same laws exist throughout the universe, but that is no reason why they should always continue to do so. Laws of nature are attributes of Deity, and the manifestations, if not the attributes, are ever changing.

The sense of Personal Identity is, like faith or belief, a feeling, and not a mere intellectual perception. It is an instinct, an intuition, a pure creation of the mind. The "I" of which we are conscious, and which we say "thinks, wills, and feels," is, as we have seen, the aggregate of our bodily and mental states, to which unity has been given by a faculty of the mind. Any kind of sameness or identity must be a delusion, an anthropomorphism, for we are never the same for any two seconds together. In both mind and body we are part and parcel only of the ever-varying forces around us. This notion of "self" and identity is not dependent upon memory, for it remains when all memory is lost; past sensations give no such feeling. That it is dependent upon a condition of the brain is evident, as under certain states of excitement this sense is lost altogether, as in the case of the two gentlemen who had been dining out: in passing through a ford one of them fell into the water and called out to his companion, "I say, Bill, there is *some one* fallen into the water." The feeling also of personality is sometimes "double," and otherwise deranged.

What are we, then? A mere correlation of forces. This may shock some people, but is it saying anything more than what every Christian professes to believe, viz., that "in Him (God) we live and move and have our being"? For is not force or power as inseparable from its Great Source as motion from the thing moving? Matter and mind, object and subject, are the same; all are force and all are subject to the same laws of force, and we arrive at the great and fertile truth of "the reign of law, even in the realm of mind," as the Duke of Argyll expresses it.\* This establishes man's dominion equally over the world of mind as of matter without any "freedom of will," or liberty to obey law or not, or cessation in the law of causation to bar

\* The Rev. C. A. Row, in the *Contemporary Review* for July last, says—  
"But God acts by law in the spiritual, no less than the material world; and there is no greater irreverence in investigating the mode of action in the one than in the other. Through whatever media it may be traced, it will be ultimately found that all spiritual vitality, no less than all material force, ultimately centres in Him."

his progress. God would not have trusted men with such a fatal gift as this, for not only would it have stopped all progress, but he might have damned himself, and all his race with it, as theologians say Adam did. The strongest force, or *motive* power, prevails every where without exception. Men can no more resist the strongest motive, which means motive or moving force, in mind than in body. He has a desire, which is an impelling force, to act selfishly, which is wrong ; if his sense of right or other motive is stronger he will abstain, not without. What then ! these forces are under the control of law and order, and can be strengthened as it may be found desirable, and cannot be capriciously exercised at what is called the "free will" of the owner. How is it, then, that this great truth has been so long hidden, and is not now accepted ? Because consciousness does not include the external force of which will is composed, and by which it is determined. As Spinoza says, " Human liberty, of which all boast, consists solely in this, that man is conscious of his will, and unconscious of the causes by which it is determined." But if man is not "free," but, like everything else, *must* act in accordance with the laws of his being ; what then, it is asked, become of the interests of morality ? what of Conscience and Responsibility ? The interests of morality are safe enough, as all the laws of man's being tend to the production of the largest amount of enjoyment—of pleasurable sensation, which I maintain is the object of all consciousness. As to responsibility, about which so much is said, it simply means that we must accept the consequences of our actions ; and when we know what these are we regulate our conduct accordingly. As to conscience, it is merely inherited experience of what is good or bad, that is, pleasurable or painful. It is a cow's conscience that makes it want to toss every dog it sees, from the inherited effects of dogs' ill conduct towards the cow's paternal ancestors in bull-baiting, which so universally prevailed in England fifty years ago. A cow has a conscientious objection to dogs in general, and she tosses her head every time she sees one, very much as some young ladies do at fast puppies of another race.

Conscience is innate, that is, it is, "the gathered-up experience of bygone generations, transmitted to us by inheritance." It is founded upon experience, although not our experience. Oersted thus describes its origin, " It could not be otherwise but that man presupposed in his fellow creatures an intellectual being like himself. When one man excited an agreeable feeling in another there arose love ; if the reverse was the case, hatred. Such influences may have given rise to the idea of a something in the actions of a man, which is to be reproved or to be rejected ; and this small beginning became the seed of the notion of right and wrong."

Good and evil are purely subjective, and the moral world is as entire

a creation of the mind as the physical world. It is merely a record of man's pleasure and pains, of his likes and antipathies, and of the various fine names by which he distinguishes the different varieties of feelings as he wishes to promote the one and to prevent the other. As our thoughts and ideas compel a reference to objects out of self, so do our feelings, and we talk of the eternal and immutable distinctions between right and wrong, whereas these distinctions have no existence out of ourselves, and one action is as good as another *in itself*, and is good, pure, holy, &c., in proportion as it tends to carry out the purpose of creation, which is not man's happiness alone, but that of all of sensitive existence. Morality is the science of living together in the most happy manner possible ; at present it is confined to men alone, but we must widen its sphere of action so as ultimately to take in all living creatures. Do not let us be alarmed, then, for the interests of morality, for as J. S. Mill says, "a volition is a moral effect, which follows the corresponding moral causes as certainly and invariably as physical effects follow their physical causes."

Physical science has made rapid progress since the introduction of the inductive method, while mental science, to which it is supposed not to apply, is little further advanced than it was two thousand years ago ; but on the recognition of this great truth, that causation is as constant, and that law reigns as much in the realm of mind as of matter, our future progress in this department must depend. This truth occupies, in the present day, much the same position in mental science, as the earth's position with respect to the sun in the days of Copernicus did in physics. Men saw that the sun went round the earth, and the Bible said it did, and Galileo was imprisoned for saying it did not. A student of that day being asked at his examination on theology whether the sun went round the earth, or the earth round the sun, answered, "Sometimes one, and sometimes the other." This is precisely the attitude of our philosophers and our men of science of the present day towards this doctrine of philosophical necessity, or of mind governed by law. Men say they now *feel* that they are free, as they before *saw* that the sun went round the earth ; and theologians say that responsibility, which, according to them, is the right to take revenge for past misconduct, depends upon this freedom, and that morality depends upon this kind of responsibility ; and when our philosophers are appealed to as to whether man is free, or subject to law, like everything else, they say, "Sometimes one, and sometimes the other." To give an instance in each class : Froude, the philosopher, says, "The foolish and the ignorant are led astray by the idea of contingency, and expect to escape the just issue of their actions ; the wise man will know that each action brings with it its inevitable consequences, which even God cannot change without

ceasing to be Himself."\* Praise and blame "involve that somewhere or other the influence of causes ceases to operate, and that some degree of power there is in man of self-determination, by the amount of which, and not by their specific actions, moral merit or demerit is to be measured."† How "inevitable consequences" are to be expected where "causes cease to operate," he does not tell us; but no doubt the earth goes round the sun in physics, and the sun round the earth where man's volition is concerned. Huxley, the man of science, says, "Theology, in her purer forms, has ceased to be anthropomorphic, however she may talk. Anthropomorphism has taken her stand in its last fortress—man himself. But science closely invests the walls; and philosophers gird themselves for battle upon the last and greatest of all speculative problems. Does human nature possess any free volitional or truly anthropomorphic element, or is it only the cunningest of all nature's clocks? Some, among whom I count myself, think that the battle will for ever remain a drawn one, and that, for all practical purposes, this result is as good as anthropomorphism winning the day."‡

Notwithstanding, we are slowly, but surely, coming to the conviction that in nature there is no beginning,—merely pre-existent and persistent force and its correlates—that is, "that each manifestation of force can be interpreted only as the effect of some antecedent force, no matter whether it be an inorganic action, an animal movement, a thought or feeling";§ that all force, or power, or ability is derived and inseparable from that of which it is the force—the Supreme Cause of all. If we have lost matter, we have found force; if we have lost mind—a supposititious, capricious existence, *governed* by nothing—we have found universal law, and "a supreme and infinite and everlasting Mind in synthesis with all things." In the correlation of force, we have one great heart-beat of the Absolute Existence. "Being underlies all modes and forms of being."|| "Nature is an infinitely divided God. . . . The Divine One has dispensed itself into innumerable sensible substances, as a white beam of light is decomposed by the prism with seven coloured rays. And a divine being would be evolved from the union of all these substances, as the seven coloured rays dissolve again into the clear-light beam. The existing form of nature is the optic glass, and all the activities of spirit are only an infinite colour-play of that simple divine ray."¶

\* Froude's Essays, *Spinoza*, vol. ii, p. 48.

† Idem., p. 59.

‡ Fortnightly Review, June, p. 664.

§ First Principles, by Herbert Spencer.

|| Hegel.

¶ Schiller.

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## ANTHROPOLOGY AT THE BRITISH ASSOCIATION, 1869.

IN accordance with our usual custom, we give a notice of the papers read at the Exeter meeting of the British Association. We shall confine our remarks in this number to the reports of the public proceedings, and await the usual official report of Sir Duncan Gibb, Bart., to the Society in November next, which will contain a narrative of the transactions that took place at the Committee of Section D (Biology). The composition of the section may be estimated from the following list.

*President*.—George Busk.

*Vice-Presidents*.—Professor Balfour, C. Spence Bate, Dr. Hooker, Sir John Lubbock, Dr. W. Ransom, E. B. Tylor, A. R. Wallace, Professor E. Perceval Wright.

*Secretaries*.—Dr. Spencer Cobbold, Professor Michael Foster, E. Ray Lankester, Professor Lawson, H. T. Stainton, Rev. H. B. Tristram.

*Committee*.—Dr. Beddoe, H. G. Bohn, J. C. Bowring, H. B. Brady, W. K. Bridgman, C. Brooke, C. E. Broome, H. Buckley, Dr. Bucknill, W. Carruthers, Professor Cleland, R. O. Cunningham, W. Boyd Dawkins, Walter C. Dendy, Professor Dickson, H. E. Dresser, Dr. Martin Duncan, R. Dunn, W. S. M. D'Urban, The Mayor of Exeter, M. P. Edgeworth, D. G. Elliott, Colonel Lane Fox, Neville Goodman, J. Galton, Sir Duncan Gibb, Dr. Heaton, W. P. Hiern, H. H. Howorth, Professor Huxley, Dr. J. Hunt, Dr. Richard King, Dr. Kelburne King, Dr. L. Knij, Dr. H. Lawson, E. McAndrew, Professor McDonald, General Munro, Professor A. Newton, Rev. A. M. Norman, P. O'Callaghan, Dr. Proctor, Dr. B. W. Richardson, J. D. Sanderson, P. L. Slater, Dr. Scott, C. Stewart, Dr. Pye-Smith, Dr. J. L. Stewart, Dr. Thompson, H. B. Woodward, Dr. George Wilson.

Professor Busk opened the proceedings of the section with some remarks intended to explain why he had not prepared an address to be delivered to the members of the section of which he was the chairman. It arose out of no disrespect to the section. It had been originally intended that his friend Dr. Rolleston should preside. Circumstances had, however, prevented him from attending, and it had fallen to his (Professor Busk's) lot to fill the office, and pressure of engagements had rendered it impossible for him to prepare an address. Following the precedent of former years, they had divided the section into different departments. The first, including all subjects of natural history, botany, zoology, and ethnology; and the second including subjects of human and comparative anatomy and physiology. The committee had decided to add Ethnology to the title of the first department. That subject had originally been joined with geography. Everyone would recollect the warm feelings exhibited in previous years on the subject of Ethnology or Anthropology, for it was a matter of indifference which word was used. But having ceased to be joined with geography, the members of the Biological Section thought that it was fitting that so important a subject as the study of man should not be omitted from the proceedings of the British Association. It was in truth one of the most important subjects that they could have before them. For those reasons it had been added to the section, and he begged to announce that the papers on Ethnology should be read on Monday and Wednesday next. Having said so much, the Professor retired to the Physiological department.

Mr. SPENCE BATE continued the proceedings with a brief address. He referred to the increase in the influence of the society since its last meeting

at Plymouth thirty years ago. The Association had now become a power in the State, and was second to none in influence on the encouragement of science among the educated masses of the country. He alluded to the desire felt at Plymouth, Barnstaple, &c., as well as in Exeter, to welcome the Association in this county. He pointed out some features in the western counties of special interest to the members of the Association. Perhaps there was no part of England that afforded more varied contrast than might be seen in this county. The wild and rocky district of the north, the uncultivated waste of Dartmoor, together with the fertile valleys of the south shores offered every inducement to naturalists to extend their researches into their peculiar path of science. The narrow neck of land that separated the ancient Dumnonia from the rest of England lay between Bridgewater and Lyme Regis, a line running nearly north and south. It was one moreover which corresponded with the most westerly limit of the nightingale. This was an interesting and unexplained fact. The influence of the geological character of soil in the growth of plants might well be studied here. Perhaps the botanist could have no more curious sight than that of Wistman's wood in the heart of Dartmoor, a grove of oaks that had been recorded in the Duchy Annals within a short period of the Roman conquest. Their roots were amongst the granite boulders. He then directed attention to certain museums which contained local collections interesting to the biologist — those of Dr. Leach and Charles Prideaux, of Kingsbridge, and also referred to the antiquities of Devon and Cornwall, interesting to the Ethnologist. On the wastes of Dartmoor and the uncultivated lands of Cornwall stood many an unrecorded monument of antiquity. Year by year they were gradually passing away. It appeared to him that it was the duty of the Ethnologist to earnestly take steps to record all of those that were in existence, to explore those which had not been examined, and to preserve all from destruction.

On Monday, August 23rd, the following papers were read:—

*On the Primitive Condition of Man*, by Sir JOHN LUBBOCK.—The author commenced by expressing a fear that some introductory observations made by the chairman would lead his audience to expect a paper of a more general character than the few remarks he should make would prove to be. It would be remembered that he read a paper at the Dundee meeting "On the Origin of Civilisation and the Primitive Condition of Man," in answer to opinions and arguments which had been brought forward by the late Archbishop of Dublin. The Duke of Argyll had replied to him in a paper in *Good Words*, which had since been collected into a volume entitled *Speculations on the Primeval Condition of Man*, and obtained a great circulation. In that paper the Duke of Argyll had misunderstood some of his (Sir J. Lubbock's) views, and he was anxious, before that large meeting, to present a few remarks in reply. He then proceeded to say that the Duke of Argyll had also attacked Professor Huxley for proposing to place man and the quadrupeds in one order of mammalia, and considers that, though this course would be justified if we considered merely the anatomical characters, it is precluded by the immense difference in intellectual power. Sir John, however, pointed out that this was a dangerous argument, since, if man was to form an order by himself on account of his mental superiority, it would be impossible any longer to maintain the unity of the human species, since they must allow a proportionate weight to the immense differences existing between different races of men. Sir John congratulated himself that the Duke, though maintaining Whately's theory as to the primitive condition of man, abandoned the arguments on which, in the opinion of that eminent logician, that theory mainly rested. He then defended himself against the Duke's criticism, that he looked on all brutal customs as primeval, and pointed out that the Duke misunderstood his argument, which was that a definite sequence of habits and ideas might be traced, and that certain customs still lingering in civilised communities told a tale of former barbarism, rather, however, on account of their simplicity than of their barbarity. The Duke's theory that savages are "mere outcasts of the human race" was then criticised as incompatible with the im-

mense area until lately occupied by tribes in a state of barbarism, and it was shown that the Brazilians, occupying a rich and fertile country, were lower than the Esquimaux tribes on the shores of the icy sea. In old times, as now settlers of new countries were, in Sir John's opinion, not "mere outcasts," but men of energy and enterprise. The Duke had asserted that "all Sir John's facts, when properly understood, told against him," which he endeavoured to prove by giving three instances, taken, however, by a curious oversight, not from Sir John's *Memoir on the Primitive Condition of Man*, but from a different work. The author, however, showed that these cases did not really tell against his view. For instance, the Duke maintained that the Tasmanians, who had no boats when discovered, must originally have possessed some, "because they could not have walked over the sea;" but the same argument would apply to the kangaroo, the echidna, and other animals which inhabit both Australia and Tasmania, and whose presence proves a former land connection between these two countries. The Duke, proceeded the author, though admitting the antiquity of man, does not, I think, appreciate the geological changes which have occurred during the human period. The only other case which he quotes is that of the highland Eskimo, who had no weapons, nor any idea of war. The Duke's comment is as follows:—"No wonder, poor people! They had been driven into regions where no stronger race could desire to follow them. But that the fathers had once known what war and violence meant there is no more conclusive proof than the dwelling-place of their children." It is perhaps natural that the head of a great highland clan should regard with pity a people who, having "once known what war and violence meant," have no longer any neighbours to pillage or to fight, but a Lowlander can hardly be expected seriously to regard such a change as one calculated to excite pity, or as any evidence of degradation. In my first paper I adduced as an argument the condition of religion among the different races of man, a part of the subject which has since been admirably dealt with by Mr. Tylor, in a lecture at the Royal Institution. The use of flint for sacrificial purposes long after the introduction of metal seems to me a good case of what Mr. Tylor has aptly called "survival." So also is the method of obtaining fire. The Brahmin will not use ordinary fire for sacred purposes,—he does not even obtain a fresh spark from flint and steel, but reverts to, or rather continues, the old way of obtaining it by friction with a wooden drill, one Brahmin pulling the thong backwards and forwards while another watches to catch the sacred spark. I also referred to the non-existence of religion among certain savage races, and, as the Duke correctly observes, I argued that this was probably their primitive condition, because it is difficult to believe that a people which had once possessed a religion would ever entirely lose it. It is hardly necessary to explain to any one that I did not intend to question the possibility of a change in, but a total loss of religion. This argument filled the Duke with "much astonishment." "Surely," he says, "if there is one fact more certain than another in respect to the nature of man, it is that he is capable of losing religious knowledge, of ceasing to believe in religious truth, and of falling away from religious duty. If by 'religion' is meant the existence merely of some impressions of powers invisible and supernatural—even this, we know, can not only be lost, but be scornfully disavowed by men who are highly civilised." Yet, in the very same page, with that curious tendency to self-contradiction of which I have already given several instances, the Duke goes on to say, "the most cruel and savage customs in the world are the direct effect of its 'religions.' And if men could drop religions when they would, or if they could even form the wish to get rid of those which sit like a nightmare on their life, there would be many more nations without a 'religion' than there are found to be. But religions can neither be put on nor cast off like garments, according to their utility, or according to their beauty, or according to their power of comforting." With this I entirely agree. Man can no more voluntarily abandon or change the articles of his religious creed than he can make one hair black or white, or add one cubit to his stature. I do not deny that there may be excep-

tional cases of intellectual men entirely devoid of religion, but if the Duke means to say that men who are highly civilised, habitually, or frequently, lose and scornfully disavow religion, I can only say that I should adopt such an opinion with difficulty and regret. There is, so far as I know, no evidence on record which would justify such an opinion, and, as far as my private experience goes, I, at least, have met with no such tendency. It is, indeed, true that from the times of Socrates down to those of Luther, and perhaps later, men in advance of their age have discovered particular religions and particular myths; but the Duke of Argyll would, I am sure, not refuse a desire for reformation with the scornful disavowal of religion as a whole. Some philosophers may object to prayers for rain, but they are foremost in denouncing the folly of witchcraft; they may regard matter as aboriginal, but they would never suppose, with the Redskin, that land was created, while water existed from the beginning, nor would any one now suppose, with the South Sea Islanders, that the Peerage were immortal, but not commoners. If, indeed, there is "one fact more uncertain than another, in respect to the nature of man," I should have considered it to be the gradual diffusion of religious light and of nobler conceptions as to the nature of God. The lowest savages have no idea of a Deity at all. Those slightly more advanced regard him as an enemy to be dreaded, but who may be resisted with a fair prospect of success, who may be cheated by the cunning, and defied by the strong. Thus the natives of the Nicobar Islands endeavour to terrify the Deity by scarecrows, and the negro beats his fetish if his prayers are not granted. As tribes advance in civilisation their deities advance in dignity, but their power is still limited; one governs the sea, another the land; one reigns over the plains, another among the mountains. The most powerful are vindictive, cruel, and unjust; they require humiliating ceremonies and bloody sacrifices. But few races have arrived at the conception of an omnipotent and benevolent Deity. It certainly appears to me that the gradual development of religious ideas among the lower races of men is a fair argument in opposition to the view that savages are degenerate descendants of civilised ancestors. Archbishop Whately would admit the connection between these different phases of religious belief, but I think he would find it very difficult to show any process of natural degradation and decay which could explain the quaint errors and opinions of the lower races of men, or to account for the lingering belief in witchcraft and other absurdities, &c., in civilised races, excepting by some such train of reasoning as that which I have endeavoured to sketch. In conclusion Sir John pointed out the remarkable similarity between savages and children, remarking that in our own homes we might trace up the gradual progress of civilisation, for that the history of the individual was an epitome of that of the race. But it was unnecessary to multiply illustrations. Every one who had read much on the subject will admit the truth of the statement. It explained the capricious treatment which single white men had received from savage potentates; how they had been alternately petted and ill-treated, at one time loaded with the best of everything, at another neglected or put to death. The close resemblance existing in ideas, language, habits, and character, between savages and children, though generally admitted, had usually been disposed of in a passing sentence, and regarded rather as a curious accident than as an important truth. Yet from several points of view it possessed a high interest. Children and savages love toys and pets. Sir John particularly instanced the rattle which was used by some savages as an emblem of authority. Tossing halfpence as dice, again, which used to be a sacred and solemn mode of consulting the oracles, is now a mere game for children. So again, the doll is a hybrid between the baby and the fetish, and, exhibiting the contradictory character of its parents, becomes singularly unintelligible to grown up people. Mr. Tylor had pointed out other illustrations of this argument, and I would refer those who feel interested in this part of the subject to his excellent work. Better understood it might have saved us many national misfortunes, from the loss of Captain Cook down to the Abyssinian war. It has also a direct bearing on the subject of the present

discussion. The opinion is rapidly gaining ground among naturalists, that the development of the individual is an epitome of that of the species; a conclusion which, if fully borne out, will evidently prove most instructive. Already many facts are on record which render it, to say the least, highly probable. Birds of the same genus, or of closely allied genera, which, when mature differ much in colour, are often very similar when young. The young of the lion and the puma are often striped, and fetal whales have teeth. Leidy has shown that the milk teeth of the genus *Equus* resemble the permanent teeth of *Anchitherium*, while the milk teeth of *Anchitherium* again approximate to the dental system of *Merychippus*. Rütimeyer, while calling attention to this interesting observation, adds that the milk teeth of *Equus caballus* in the same way, and still more those of *Equus fossilis* resemble the permanent teeth of *Hipparrison*. Agassiz, according to Darwin, regards it as a "law of nature" that the young state of each species and group resembles older forms of the same group, and Darwin himself says that "in two or more groups of animals, however much they may at first differ from each other in structure and habits, if they pass through closely similar embryonic stages, we may feel almost assured that they have descended from the same parent form, and are therefore closely related." So also Mr. Herbert Spencer says—"Each organism exhibits within a short space of time, a series of changes which, when supposed to occupy a period indefinitely great, and to go on in various ways instead of one way, gives us a tolerably clear conception of organic evolution in general." It may be said that this argument involves the acceptance of the Darwinian hypothesis; this would, however, be a mistake; the objection might indeed be tenable if men belonged to different species; but it cannot fairly be urged by those who regard all mankind as descended from common ancestors; and, in fact, it is strongly held by Agassiz, one of Mr. Darwin's most uncompromising opponents. Regarded from this point of view the similarity existing between savages and children assumes a singular importance, and becomes almost conclusive as regards the question now at issue. Lord Dunraven, as the president of the Cambrian Archaeological Association, said last week, in his opening address:—"If we look back through the entire period of the past history of man, as exhibited in the result of archaeological investigation, we can scarcely fail to perceive that the whole exhibits one grand scheme of progression, which, notwithstanding partial periods of decline, has for its end the ever-increasing civilisation of man, and the gradual development of his higher faculties." I confess, therefore, that after giving the arguments of the Duke of Argyll my most attentive and candid consideration, I see no reason to adopt his melancholy conclusion, but I remain persuaded that the past history of man has on the whole been one of progress, and in looking forward to the future we are justified in doing so with confidence and with hope.

In the subsequent debate—

Sir GEORGE GREY said he had listened with extraordinary interest to the paper which had been read by Sir John Lubbock. It was marked by profound research and learning, great attention to the subject, remarkable candour, and generous and fine temper. But he found difficulty in speaking on the subject. He hardly knew what "civilisation" meant, and he hardly knew what "barbarism" meant. Living recently in London near the Royal Palace, in the heart of the most civilised nation, at the back of the house in which he resided, he had witnessed scenes of barbarism and heard language the like of which he had not seen or heard in any savage race upon the earth. With him civilisation was inseparable from religion. It really meant that if it meant nothing else. It was possible for a nation to be polished in the highest degree in arts, to be learned on scientific subjects, and yet to enfold in itself a population sunk in the deepest barbarism and ignorance. The Greeks and Romans, and Great Britain of the present day, afforded proof of what he said. He had always felt that the Archbishop of Dublin was mainly right. Regarding civilisation as the development of religious feeling, and the knowledge of man's duty to his fellow-man, he believed that no savage

nation had ever attained to that knowledge of itself. The highest state of civilisation was the highest development of Christianity—the unselfishness of man and regard for the welfare of his fellow-man—and he believed that this virtue had in every case been introduced among the various races of mankind by some race who claimed (he would not say whether rightly or wrongly) by inspiration to have received a knowledge of its truths. In every case where people did recognise duties of that kind, they affirmed that they had received the knowledge in this way. He had been much among savages, but had never seen any tendency in them to advance in the civilisation of which he had spoken, or in the arts that were beneficial to mankind generally. The laws and institutions of the savages which he had studied contained in themselves a tendency to perpetuate barbarous manners and customs, and he always believed that the greatest evil that could befall man would be for him to sink from the knowledge of that virtue and those religious truths to which he had referred. The result would be, as it had been, to fall into idolatry, which entailed innumerable cruelties and evils on mankind. He made no distinction between the cruelty of gladiatorial slaughter by the Romans and the human sacrifice and bloodshed of the Polynesian islanders. Those races that had had imparted to them the higher duties and knowledge of which he had spoken were really the only races to be regarded as civilised, and that civilisation was derived from a source beyond themselves.

Mr. HOWORTH wished to throw an apple of discord, or rather a Siberian crab, into the discussion. The views that had been delivered by Sir J. Lubbock could best be examined by the light of the knowledge they possessed of Asiatic populations. The lesson that was taught them in Central Asia was opposed to the views of Sir J. Lubbock. The great Manchoorian race which had conquered China, was now represented in Siberia by Tartars in a miserable condition. He also contrasted the original condition of the ancient Mongolians and Turks with that of the representatives of those races, as described, among others, by Professor Vámbéry. The result of this contrast was to show that the respective races had suffered degradation from a higher state of civilisation. He refused to consider the question of Africa and America, because they had really no history of the aborigines of those countries, as they had of those of Asia, to whom he had referred. He was highly pleased with the speech of Sir George Grey. There was no reliable account of any savage race having improved itself. Egypt and China might be referred to, but they knew nothing of the aborigines of those countries. But they had instances of nations having received a legacy of civilisation from others. Sir J. Lubbock had referred to the survival of savage customs among civilised people. Upon this he observed that there was a tradition among the New Zealanders that they had come from a race with whom cannibalism was not a custom. On the other hand, the existence among the Shamans of Asia of the rattle and the drum as instruments of importance, however childish it may seem, was to be traced back to the Buddhists of Thibet, and it would not be pretended that the philosophy of the Buddhists was to be ranked with the notions of the savages whose use of the rattle, &c., had been made so much of in support of Sir J. Lubbock's views. Mr. Howorth believed with Sir J. Lubbock that a certain kind of progress was going on, for when we compared Socrates with Stuart Mill, Diogenes the dog with the present Chancellor of the Exchequer for cynicism, and Zoroaster, Confucius and Moses with Hepworth Dixon as an historian, he thought that we had not fallen very far behind.

Dr. BLANC (of the Abyssinian expedition) observed that Sir J. Lubbock, by his reference to Abyssinia, had probably meant that king Theodore was a child. With that Dr. Blanc agreed, only that he was a very naughty child, and he might be made the subject of a moral to show the evil of pursuing a wilful career. Theodore came to his grave through acting like a grown-up child. When he ought to have been fighting against the rebels, he wasted two months in futile attempts to build a raft with wheels to be propelled by hands. Once his warriors propelled it 200 yards across a lake, but it leaked, and Theodore gave up the job. Another time, hearing of

English artillery being strong, he ordered his European workmen to cast a mortar. They cast one weighing 16,000 lbs., and lost four months in bringing it to Magdal<sup>1</sup>, when it was never used. In the third place, when the English army was approaching, the advanced guard carrying ordnance covered with cloth on the backs of camels, he judged they were treasure-boxes and incited his chiefs to go to the attack in the expectation of much loot. He thought the acts of Theodore confirmed Sir J. Lubbock's opinion that the savage was like a child.

Sir WALTER JAMES was anxious to call attention to the interesting analogy which Sir J. Lubbock had noticed—though it was not altogether novel, for it was to be met with in Dr. Temple's article in *Essays and Reviews*—the analogy that existed between the history of the individual and of the race. He agreed with that view, but he was not prepared to concur in the inference that the human race was indefinitely progressive. If the analogy were a true one they ought to bear in mind the characteristic faults of old age. The faults of savage life, it was assumed, were those of childhood. Were not the faults of ultra-civilisation the faults of old age? One of the characteristic faults of old age was an over-estimate of the value of money. So, as civilisation went on, the estimate of wealth increased, and the nobler and more chivalrous qualities of our ancestors might have a tendency to diminish. He did not deny that generous and self-denying men existed among them; but they should take warning against the characteristic defects of old age that might be threatening civilisation. One test of civilisation was the value put on human life. Savages put very little value on it. But was it not a melancholy thing that there were millions of men in arms in Europe, if not to the direct, to the indirect damage of human life in many ways? Turn again to the want of protection from child labour, as in our own factories. Therefore while subscribing to the analogy drawn by Sir J. Lubbock, yet they could not look forward to everything being *coulour de rose*. If the child was like the savage, the old man became in many respects, unfortunately, like the child. We were advancing in scientific knowledge and research, but an advance in morals was not so clear a fact. He feared the human heart was what mathematicians called a "fixed quantity," and not susceptible of improvement like other parts of his nature.

The Rev. H. B. TRISTRAM observed that the line of progress had not been continuous. What had become of the old civilisation of the Assyrians? With respect to savages, it must be said to their credit that they were commonly equal in conduct to the code under which they lived. The Arab had an extreme veneration for truth, which his code enjoined, although he would kill a man without compunction.

Mr. A. E. WALLACE contributed a lengthy speech to the discussion. He regretted that the Duke of Argyll was not present to reply for himself to Sir John Lubbock's admirable paper. In his Grace's absence he said he would take some points in his favour that might be made. No doubt, as a general principle, the evidence pointed to a decided and tolerably steady advance of mankind in all those arts of life, the grand sum of which determined civilisation. At the same time, there were a great many matters in which there seemed to be some objection to this view. There were one or two cases that seemed to show a degradation or loss of civilisation. The ancient remains found in America showed the existence of a race at a time not very long past which were decidedly superior to any native aborigines now in North America, inasmuch as they worked copper mines, which none of the present races did. There were also elaborate temples and works of art to attest wide-spread civilisation once existing on that continent, and now lost. Then, again, there was a sort of special pleading in the argument of Sir John Lubbock's, that if the native Australians were the degraded descendants of a race half-civilised, the European settlers ought also to become degraded. But the European settlers were not cut off from their race, which altered the case considerably, and rendered the argument fallacious. Suppose that a European colony were entirely isolated from their race, then, he thought, there was almost a moral certainty that in the course of centuries they would suffer a considerable amount of degradation, and

hardly be recognised as the descendants of a civilised people. Therefore, he believed that the lowest races of mankind owed their low condition not to their retaining the type of the original state of man, but because they had suffered degradation from a more civilised race. In a discussion on civilisation it was almost impossible to keep morals out of the question altogether. The people who were advanced in intellect and arts, but low in morality, could hardly be considered civilised. Therefore, although he believed the two things were, to a great extent, distinct, he was inclined in this question to place more weight on morals than on intellect, while Sir J. Lubbock would put more weight on intellect than on morals. It was indisputable, in regard to arts, that man was improving, but he would hardly say so much with regard to morals. We could trace backward to pre-historic races the diminution of the arts of life till we arrived at a period when the arts enabled man to do no more than fashion flints into weapons and tools. But as to morals, we did not find such decided diminution as we looked backward. He had met with savage tribes destitute of the arts of life and low in intellect, but possessed of a wonderfully delicate sense of right and wrong in morals. How did they get that sense? He had met some savages who would refuse to do an action which they thought would infringe on the rights of others, and had refused to answer questions lest they should tell a lie. He was speaking of the Dyaks of Borneo. How was that moral feeling to be accounted for? If they represented the original state of man, how came the moral sense to have grown, and the other faculties not to have grown? There was some evidence of a moral or religious sentiment existing even in pre-historic man; he alluded to the discovery in the Cave of Aurignac of preparations made for the food of the dead of the pre-historic race laid in the cavern. This showed the appreciation of a future state—a feeling which showed man to be above the brute. He agreed in the similarity drawn between children and savages. But was not the moral sense of children and their affection higher than their intellect? But morals were hardly a scientific question; but he still thought that on its determination depended the true state of early man. They ought not to conclude that because man had advanced in the arts of life therefore he had advanced in morals. He did not say it was proved that man had not advanced in morals; but all the arguments that went to prove that ancient man was not civilised intellectually utterly failed to prove that he was not civilised morally. The evidence as yet only went to prove that the moral nature of man was only modified, not improved, under civilisation. Therefore, the argument of derivation from the lower form of life did not in the slightest degree touch the unknown region of his moral nature.

Mr. EVANS thought much of the discussion had arisen through different views being taken by the Duke of Argyll and Sir J. Lubbock of the word "civilisation." It could be shown in regard to the lowest state of man that the struggle for life must occupy so much time as to leave little or none for moral culture. He did not attach much importance to the evidence of the cave of Aurignac, but he thought there was great evidence of improvement in man. Our own civilisation was derived from the Romans, the Greeks, and, further back, from the Egyptians; and when we had gone back to the Egyptians, it was found we had arrived at a period when many of our civilized appliances were unknown. Languages of civilised people bore evidence of having been derived from languages of monosyllables which marked the uncivilised. When man appeared on earth he was deficient of domestic animals and of corn, and must have been in a state not much above that of the animals that surrounded them. It was improbable that he was in morals very far above the animals with which he was somewhat connected in those early times.

Mr. BOYD DAWKINS said a few words relative to the Cave of Aurignac. As regarded the supposed religious history of the people who used that cave, and who were contemporaneous with the mammoth, he had indisputable evidence that the cave contained nothing that bore on the religious condition of this ancient folk. On the contrary, he had bones in his possession taken from the cave, showing that it must have been opened after it was

occupied by pre-historic man. The bones were those of animals unknown to Western Europe until ages after the ancient folk and the mammoth were lost. He could not concur with Mr. Wallace that arts and morals were ever divorced.

The Rev. J. INGLE said that he thought that Sir J. Lubbock had misread some portion of the Duke of Argyll's book, and suggested that it would be advisable to have a definition of "civilisation" as a means of simplifying the subject before them. He should like to hear Sir John Lubbock on the question of languages and on that of traditions. How was it that the tradition of savage people so generally spoke of their progenitors having been civilised? Again, as to the ancient civilisations, and as to the arts, ancient Rome was better supplied with water by means of its aqueducts than London was in the present day. If there was a universal law of progress he would ask Sir J. Lubbock to quote one specimen of a savage nation having advanced of itself to a state of civilisation. Without this specimen he thought the theory of Sir J. Lubbock might be rather termed a nebulous hypothesis.

The PRESIDENT said the discussion had been most pertinent. Mr. Wallace had told them that they should divide those two lines of enquiry—arts and morals; but he did not concur with Mr. Wallace that the question of moral history was not a scientific one. He thought it was; but the moral progress had not been studied as that of material conditions had. Sir J. Lubbock's paper was directed to the question of the material progress of mankind, and he was bound to say that in his opinion the paper had not been answered. Mr. Howorth had not met the exigencies of the case. He could assure Mr. Ingle that he was wrong in thinking that the traditions of savage races generally pointed to their having descended from civilised men; it was more commonly the reverse. He agreed with Sir John Lubbock, and disagreed with the Duke of Argyll. He would ask confidently whether there was really much difference between the good but ignorant savage of whose existence travellers had told them, and the ignorant primeval man to whom the Duke of Argyll looked back as the early representative of our race.

Sir JOHN LUBBOCK briefly replied to the several speakers.

*Human Remains in the Cave of Cro-Magnon, in the Valley of the Vézère.*—Dr. P. M. DUNCAN read a paper upon some cave remains found in the valley of the Vézère in the course of certain railway operations. The remains have been scientifically examined by order of the French Government, and there were four distinct layers of charcoal, or hearths, with considerable intervals between them. Bones of the mammoth were found here, mixed with human bones, and also the bones of the reindeer. M. Lartet, who examined the bones for the French Government, held that the men and the mammoth had existed together; but Dr. Duncan, and those who took part in the discussion, did not favour the view, and it was generally agreed that the bones of the mammoth might have been found by reindeer hunters, and carried to the cave.

*Flint Implements in the Valley of the Thames.*—Colonel LANE FOX described some researches he had made recently near Acton, Middlesex, and at various places along the valley of the Thames. He had found a large number of flint implements in such a position as to leave no doubt that the river Thames had once occupied banks one hundred feet higher than the present, and for many miles in width.

Mr. EVANS said that the gravels in which the implements were found must have been deposited in the river terraces at a period wonderfully remote, yet the men who had made and used the flint implements must have lived prior to that time.

*Discovery of a Lake Island in South Wales,* by the Rev.—DUMBLETON.—The paper was abundantly illustrated by drawings, and also by some piles and other articles found on the island. The description of the island showed it to be identical with the lake dwellings of Switzerland; and it appeared that there had been a tradition in the neighbourhood of a city buried in the lake. The bones found round the island were pronounced to be those of the horse, of a small species of ox, sheep, and wild boar.

Mr. LEE said he was not of opinion that a very remarkable antiquity could be claimed for the island.

*So called "Petrified Human Eyes" from Peru.*—Dr. SPENCER COBBOLD, for the Rev. Dr. A. HUME, read a paper on the discovery of what had been supposed to be petrified human eyes at Arica, in Peru. The region is exceedingly arid, and animal remains are not decayed, but dried, when put into the earth; and the communication stated that the corpses of Indians who had been buried before the Spaniards had landed were frequently to be found. In one part of Arica, near to where large numbers of people were known to be buried, a quantity of eyes had been obtained. Some of these had been found near the corpses, and some, it is said, in the eye-holes of the skulls. A belief had prevailed that they were human eyes petrified; but, on a collection of them being sent to Professor Owen (see on this subject *Trans. Ethno. Soc.*, new series, vol. iv, p. 59, read January 10th, 1865), he pronounced them to be the eyes of cuttle-fishes. Several were exhibited by Dr. Cobbold, and examined with much interest by those in the room.

The following proceedings took place on August 24th:—

*On Stone Implements from Rangoon*, by ADMIRAL SIR EDWARD BELCHER.—This paper was written by a gentleman who is now in India, and communicated to the British Association by Admiral Sir E. Belcher, with a recommendation to furnish the former with the means of pursuing his investigations. Description was given of the several implements discovered, and elicited some remarks from the President.

*On the paucity of Aboriginal Monuments in Canada*, by SIR DUNCAN GIBB, Bart.—Being familiar with the archaeological discoveries in Canada from long residence there, it seemed to the writer that there must be some reason why monuments of an aboriginal character were wholly absent or exceedingly scarce. Humboldt referred to one found in the Western Prairies, but now lost. The author in his inquiry excluded small Indian remains, such as flint implements, pottery, burying grounds, &c., also mounds or barrows. It referred to monuments of stone, built either as dwellings or temples, as met with in Central America. There were two reasons, he said, why such remains were not found in Canada and other northern nations. The first was the extreme cold and rigour of such a climate as existed in Canada, with its six months of winter. The ground covered with snow was unfavourable for the preservation of architectural monuments or remains of any kind, unless carefully looked after as in modern times. The action of the frost he described. For the same reason similar remains were scarce in Northern Europe and Asia. Climate was not only the great drawback to their preservation, but if any monuments had existed some centuries of frost would have completely destroyed them. Secondly, the people who built the American and Canadian mounds, he believed, were the descendants of the Tartars who crossed into America by Behring's Straits, and occupied the whole or greater part of the continent. He considered them a different race to those who built the magnificent temples of Central and South America. They were not builders of stone, unless as met with in some of the mounds. But supposing either race to be builders of stone, had any such monuments existed in the colder parts of North America they would not have held together for any period of time. Although the climate varies somewhat in Canada, being milder in the western part, still no evidences of true Aboriginal monuments were to be found. The climate of Egypt and Central America was peculiarly favourable for their preservation, and who could say the builders were not the descendants of the same people? Of rock sculptures and markings Canada could boast few, especially in caverns, but there was no reason why some day they might not be discovered, particularly in the series of caverns existing between Flamborough and Georgian Bay, and also in a series of caverns which the author conjectured would be some day discovered in rocks of a similar formation in the Island of Anticosti.

*On the Primæval Status of man*, by MR. W. C. DENDY.—“Men of faith should inquire more, and men of science should believe in more.” Starting from these premises, the writer of the paper enunciated the principle that matter,

ere it could act, must be specially endowed with the force and faculty of action. Chemistry had not yet evolved a living cell. Mr. Dendy criticised, and, in criticising, satirised the Darwinian theory; and contended that fossil palaeontology indicated not exaltation but degradation. Was it not wonderful, on the hypothesis of the simial origin of man, that the chimpanzee, with a brain so nearly resembling that of man, and with organs fitted for speech, had never learnt to utter one word? Certainly the difference in the brain of man and the ape was more in quality than quantity; and there was a near resemblance between the most anthropoid ape and the most pithecid man. But there was no chance of modern transmutation; and palaeontological researches had failed to supply the missing link. If the link were found, would it prove either exaltation or degradation—the ape-man or the man-ape? Man, at least, historically had confirmed the purity of his blood, and the inborn dignity of his intellect and prowess.

Dr. COBBOLD referred to palaeontology to prove that there had been a definite succession and progress in the appearance of animal life on the globe from the lower to the higher forms.

Dr. DUNCAN, in reply to an assertion of Mr. Drake, denied that anthropologists were irreligious. If they attempted to evolve man from any animal they must go far back, as Professor Huxley did, into geologic time. It was ridiculous to try to connect man with the apes.

Sir DUNCAN GIBB and the Rev. Mr. NOEMAN also defended the anthropologists and ethnologists against the charge of irreligion.

Mr. E. VIVIAN suggested that there was evidence of two origins of the human race—that they had evidence of a primeval barbarous race existing in far back times; and of the introduction of a later race, highly civilised and moral, at a period not further back than that indicated by Ussher's Chronology. Hence there was truth and error in the opposite theories on the subject of the origin and progress of man.

Mr. LEWIS, Mr. WALLACE, and others, continued the discussion.

*Megalithic Monuments*, by Mr. A. L. LEWIS.—He said there exists a practically unbroken chain of megalithic (druidic) monuments extending from India to Great Britain. Who were their builders? Circumstances—namely, such an identity of plan as could not be accidental, extending through an unbroken chain of communication, and the existence of common practices and superstitions, and other traces of affinity throughout that chain, led to the conclusion that there must at least have been a great common influence at work throughout this area, though possibly not an absolute community of race. Judging from the probable social condition of the builders of these monuments, the localities in which they are principally found, the remains found with them, and other circumstances, they were probably constructed under Celtic influences, at least in Europe and Africa. The consideration of a number of facts induces the belief that the single upright stones (menhirs) were used as memorial pillars, the circles and alignments primarily as places of sacrifice, and the dolmens, or table stones, of which there are two well-marked varieties, as places of sepulture on the one hand, and places of sacrifice or memorial on the other hand.

*Westerly Drifting of the Nomades from the fifth to the nineteenth Century*, by Mr. H. H. HOWORTH.—The papers identified the Circassians of modern writers with the White Khazars of the Byzantine and Arabian writers, from the evidence of tradition, language, and historical notices, and also with the White Huns of Priscus. This fills the area north of the Caspian and the Oral, with a race of Aryan affinities, and very highly cultured; remarkable, too, for being the last nation added to the list of Jewish proselytes. The Turks, in the eighth century, contrary to the opinion of Dr. Latham and others, were confined to the countries east of the Altai Mountains; the previous invaders of Europe, Avaras, Huns, &c., having all belonged to the great Ugrian family of races.

*Origin of the Tasmanians*, by Mr. J. BONWICK.—The origin of the Tasmanians has at this moment a painful interest, the last man of the race having departed, the sole survivor of the island being an old woman. Coming himself from the land of the gum tree, the lecturer stated at large the habits of

the aboriginal inhabitants, and exhibited some very interesting sketches and details of this extraordinary race.

A discussion followed, in which the President and others took part.

Dr. MILLIGAN mentioned some very interesting particulars respecting his personal experience among the aborigines.

On August 25th, *Notes on the Woolwa and Mosquito Vocabularies*, by Drs. R. S. CHAENOKE and C. C. BLAKE, were the first papers called on. The Secretary explained that the bulk of the paper consisted of the vocabularies and their explanations; he did not think it need be read. It was accordingly taken as read.

*The Natives of Vancouver's Island and British Columbia*, by Dr. E. KING, F.A.S.L.—The natives are called Flat Heads, of which there are four varieties:—the elongated head, from before backwards, the conical head, the square head, and the elongated head from side to side. These artificial heads are produced by pressure on the forehead, and bandaging on the sides (the elongated head from side to side excepted), until the child is a year old. It does not affect the intellect. It is mere displacement of brain. He called this the artificial deformity, in which there is conformity of error; but he described a deformity which is going on to a great extent in civilised life, which he called natural deformity, or non-conformity of error, which he attributed to the mode of nursing. For instance, the child is nursed on one side, there being a loss of one breast; or the mother has twins, and nurses one child on side and the other on the other side; or she is a wet nurse, and nurses her own child on the one side and her foster child on the other. This mode of nursing necessarily inclines one side of the head downwards; it may be the right side, or it may be the left. Now, as the brain necessarily forms the brain case, or skull, as the kernel of the nut forms the shell, the brain in its growth, which is very rapid in early life, necessarily carries the bones now incomplete to the depending side; thus the head of the child is larger on the depending side than on the opposite for life; if not corrected before the several bones of the head are consolidated into one form. Thus, the cranial vault is deformed, and in proportion as the cranial vault is deformed so is the face. The cranial vault of the European is well represented in the egg of the turkey. The forehead represents the apex of the egg, the back-head the base of the egg; reverse this, and the base of the egg will represent the forehead of the face, and the apex the chin of the face. Deformity of face is, therefore, necessarily the result of deformity of the cranial vault. A further deformity of face takes place in the child sucking its thumb, the index finger being placed as a rest on the nasal bones, then inclining them to one side, either right or left, as the child takes to its right or left thumb to suck. In order to obviate the deformity natural, Dr. King has taken a hint from the Esquimaux. He found in his visit amongst them that they nursed their children from their back, and by a shrug of the shoulder the child is brought under the right or left arm as the mother desires, thus the right head and left head are depending alternately; thus the civilised mother, having lost one side by alternately nursing from the front and the back, will make up for the loss she has sustained, and produce a symmetrical head and face, and not a deformed head and face, and an intellect of conformity, instead of non-conformity. The native population of Vancouver's Island is estimated at eighteen thousand, but, as in all cases of estimates of the uncivilised races, wandering as they do, this estimate cannot be relied upon. By far the most numerous of powerful tribes live on the west coast or on the outward seaboard of the island, and the white man is respected by them. The natives generally are in a very degraded state; occasionally industrious, trustworthy individuals are to be met with, but, as a body, continuous labour cannot be depended on. They live entirely on fish, and on a small esculent plant called camass, which they collect and store up for winter, as we do potatoes, and they cook them as we do by boiling and baking. The camass digging is a great season of réunion for the women of the various tribes, and answers to our haymaking or harvest home.

*On the Esquimaux, considered in their Relationship to Man's Antiquity*, by Captain W. S. HALL.—The Esquimaux, as is well-known, inhabit regions within the Arctic Regions, comprising Greenland and the islands to the west

of that continent. Ethnologically considered, they are of the Mongolian type, and in this respect allied to the Finns and Laplanders, and the races of Central and Eastern Asia. The question arises, where and when did this peculiar people originate? That no originating centre of the human species can have occurred within the Arctic Circle as at present constituted is self-evident. That the progenitors of the present inhabitants migrated within any recognisable period of history, from southern and more genial latitudes, is equally irreconcilable with ordinary reason, even if their peculiar type did not render such hypothesis untenable. Against the possibility of Greenland having been peopled from Lapland or Finland, the evidence is so strong as to amount almost to a certainty. In the first place, the North Cape of Europe is separated from Cape Farewell, in Greenland, by at least sixty-nine and a half degrees of longitude. Again, the prevailing winds in these latitudes are from the west, or from Greenland to Lapland; and lastly, the Gulf Stream in its north-easterly course, between Iceland and the coast of Norway, would naturally carry any fragile craft from the north rather towards Nova Zembla than to Greenland. The lecturer then proceeded to show that a temperate climate prevailed in the Arctic regions during the miocene era, and proved this by giving a list of the fossil plants which had been found in Greenland, and submitted to Professor Heer. These showed that, at the time they lived within the Arctic circle, a warmer circle characterised that latitude than that now prevailing in Devonshire. From this Captain Hall deduced the conclusion that the miocene was the epoch when man first made his appearance on the earth.

Sir JOHN LUBBOCK, Bart., said he had no doubt that ultimately man's advent on the globe would be traced to the miocene epoch, but he differed from the author, in holding that man was to be found in his original condition in the Devonshire bone caves, rather than in the temperate fossil forests of the extreme North. The reindeer and the whale had always accompanied prehistoric man, and he did not see why he should be less happy than in more temperate regions. Were it not for such intellectual treats as the British Association meetings, and were he to choose a purely animal life, he should prefer an Arctic condition to that of the dripping forests in Central America.

Sir E. BELCHER next gave a short account of the raised beaches in the Arctic regions, and of the various fossil plants he had himself found.

Mr. VIVIAN thought that the Bovey Tracey lignite beds were of the same age as the Greenland, and if Captain Hall's idea were correct, human remains might be found there.

*Notes on an Inscribed Rock*, by Mr. R. TATE, was so well illustrated by diagrams that the Chairman said they were sufficient.

*An Obstacle to Human Longevity beyond Seventy Years*, by Sir DUNCAN GIBB, Bart.—He drew attention to the position of the leaf-shaped cartilage at the back of the tongue, known as the epiglottis, in 5,000 healthy people of all ages, and in eleven per cent. it was found to be drooping or pendant, in place of being vertical. He discovered the important fact that in all persons over seventy, its position was vertical, without a single exception—a circumstance of the highest importance bearing upon the attainment of old age amongst Europeans. In a number of instances, where the age varied from seventy to ninety-five, in all was this cartilage vertical. Many of these he cited as examples, such as the well-known statesmen, Lord Palmerston, Lord Lyndhurst, Lord Campbell, and Lord Brougham. He also gave instances among old ladies still alive, at ages from seventy-six to ninety-two, whose epiglottis was vertical. But the most remarkable was that of a gentleman still alive, 102 years old, in whom it occupied the same position. His facts clearly demonstrated that longevity beyond seventy could not be attained with a pendant epiglottis. He summed up his views in the following conclusions:—1. As a rule persons with a pendant epiglottis do not attain a longevity beyond seventy. Possibly a few may overstep it, but such examples are exceptional. 2. With pendency of the epiglottis, life verges to a close at or about seventy, and the limit of old age is reached. 3. A vertical epiglottis, on the other hand, allows of the attainment of fourscore years and upwards, all other things being equal, and affords the best chance

of reaching the extremest limit of longevity. 4. Lastly, pendency of the epiglottis is an obstacle to longevity, certainly beyond the age of seventy years, and it is a peculiarity that occurs in eleven per cent. of all ages amongst Europeans.—He followed this with a paper on *A Cause of Diminished Longevity beyond Seventy Years*. He said a considerable portion of the Jewish race possess a physiognomy, to which he gave the name of sanguineo-oleaginous expression, characterised by varying degrees of flushed face, sleepy aspect, greasy look, guttural or husky voice, and fulness of body. The best examples of the class are to be seen in the furniture auction rooms of the metropolis. With this expression is usually associated pendency of the epiglottis. As a rule, longevity is rare among such persons, for they are liable to those diseases of a congestive character, which influence the heart, brain, and liver. The main cause of all this is eating food, especially fish, cooked in oil, which tends to the destructive formative processes in the system, and induces old age before the prime of life is reached, although the individual may appear to be the personification of comparatively good health, from his weight and size. The extensive use of oil in the South of Europe has the same effect in giving rise to congestive diseases and diminished longevity. Pendency of the epiglottis associated with the sanguineo-oleaginous expression is of serious import. The persistent use of oil, therefore, as an article of diet, is pernicious, unless in persons of a spare habit of body, delicate constitution, and liability to disease wherein its employment would prove useful.

Mr. DENDY quoted some cases corroborative and confirmative of the facts mentioned by Sir Duncan.

Mr. A. P. PROWSE said that the epiglottis, as people advanced in years, would naturally fall.

Dr. STEWART thought the subject of both papers was of the greatest interest and importance. Speaking of health and longevity, he thought that if digestion was particularly looked after it would be conducive in a great measure to long life; most of the diseases of the throat were due, in addition, to bad digestion.

*Human Remains in the Gravels of Leicestershire*, by Mr. F. DRAKE, F.G.S.—In 1866, a tusk belonging to the elephant species was found directly on the Keuper sandstone, at twelve feet from the surface among gravel, near the banks of the river Soar, in Leicestershire. This he regarded as very significant, and plainly indicated that before the deposit of the great drifts of gravel, and when the river here was at least a mile in width, those animals roamed about on the neighbouring hills, and if we co-relate man as contemporary with these animals, we shall probably reach Pliocene times as the date of his appearance. Near Stoney Stanton last year, in a bed of gravel, fifteen feet from the surface, a portion of a human skull was found. It was very low in type, and the brain cavity was small. There was every indication of its having belonged to such a race as the flint weapon makers. There was no remark or discussion on this paper.

*Method of Forming the Flint Flakes used by the Early Inhabitants of Devon*, by Mr. T. M. HALL, F.G.S.—The flint flakes and chippings found distributed throughout the soil in several parts of North Devon, and those associated with the submerged forests at Northam, occur so abundantly that the question has sometimes been raised whether or not they may have been naturally formed, or whether they may be the result of some unknown kind of accidental fracture. In about ten different localities flint cores have been found buried with the flakes, and, from a careful observation of them, it appears that they are of great importance in deciding this point; for, whilst a flake may possibly, in some cases, be caused by an accidental blow, the cores show unmistakeable evidence of design. They show also that, owing to the extreme scarcity of flint all through the northern parts of northern Devon and Cornwall, the early inhabitants appear to have adopted in these districts a somewhat peculiar method of forming the flint flakes, which were probably used by them as knives and scrapers for domestic purposes, or as darts and arrow-heads for war and the chase. This method, as far as I know, differed considerably from that which prevailed in flint-producing countries; and it

seems as if the value of material was such as to induce the makers of these flakes to adopt a plan by which the maximum number was obtained with a minimum amount of waste. All the flint flakes and cores from the ten different stations along the coast, from Croyde to Bude, show a singular uniformity in their design; and the method by which they were formed appears to have been as follows: A model having been selected, a flat surface or base was then formed by striking off the flattest end as near the point as possible. If the flint was cherty, or showed an uneven and hockey fracture, it seems to have been rejected in this first stage of its manufacture; but if, on the other hand, it split with a smooth conchoidal fracture, a series of blows was administered from the flat surface at intervals round the margin, so as to peel off the rough coating of the nodule on three sides. The second series of blows produced the largest flakes; and a third, or even a fourth, set of flakes would successively be obtained in this manner before the core was used up. This peculiarity was incidentally noticed by me about two years ago, in the course of a communication to the Society of Antiquaries; and a subsequent examination of many hundred flakes and cores has served to prove that the same process was in use throughout the whole of this district. The largest flakes hitherto found in North Devon are about three inches in length, but between these and the smallest, which measure not more than three parts of an inch, there are innumerable gradations in size. The result of the principal excavations which had been made at Croyde and Northam shows that the average proportion of cores to flakes is about fourteen per cent.

Sir JOHN LUBBOCK did not see that there was any difference in the formation of the flakes found in North Devon and those found in other parts of the country. He had noticed in the Exeter Museum one or two labels which he would like to see removed; he referred to some natural flakes which were labelled as cores, but there was not the slightest evidence that they had been subjected to human operation.

The PRESIDENT observed that if private remark were made to the curator of the museum, he had no doubt that the labels would be corrected. When there was any doubt or uncertainty about objects, they should be kept separate.

Mr. R. GARNIER read a brief paper *On the Head of a Negro*, which he compared with the European skull.

This was followed by a lengthy paper *On the Frontier Line of Ethnology and Geology*, by H. H. HOWORTH, Esq.

Mr. J. H. KINAHAN, in his paper, *On the Race Elements of the Irish People*, remarked that they seemed to be of a very mixed origin.

*Race Affinities of the Madecasses*, by Mr. C. S. WAKE, was too voluminous to be read at the present point of the proceedings.

A short extract was read of Mr. J. STIRLING's paper, *On the Races of Morocco*; after which the Chairman declared the work of the section at an end.

The following papers, which were taken to Exeter, were withdrawn by the authors, in consequence of no Anthropological Department having been appointed:—

Dr. BEDDOE—"Anthropology of Devon and Cornwall."

L. O. PIKE—"Method of Anthropological Research."

L. O. PIKE—"Psychical Elements of Religion."

Dr. HUNT—"On the Question of the Acclimatisation of Man considered with reference to Europeans in the United States."

Dr. HUNT—"On the Negro in the New World."

E. PEACOCK—"On the Anthropology of the Isle of Axholme."

Drs. CHARENCOCK and CARTER BLAKE—"On the Mosquito and Wulwa Dialects."

J. P. HERWOETH—"The Races of Jamaica."

And others the names of which have not reached us. The following papers were read in other departments of the Association:—

*The Occasional Definition of the Convolutions of the Brain on the Exterior of the Head*.—This paper, which was read by Mr. T. S. PRIDEAUX, was illustrated by a cast, and the leading conclusions were thus stated:—The general outline of the skull—with the exception of its base and certain

limited portions covered with muscle, more especially beneath the arch of the zygoma and behind the external angle of the orbit—is convex, presenting a flowing curve. Occasionally, however, and perhaps more frequently in the forehead than elsewhere, the outline of a cerebral convolution is so prominently defined in the skull as to be very apparent in the exterior of the head through all the integuments. Sometimes it happens that, after wasting from sickness, the outline of convolutions masked before through the thickness of the integuments, becomes so conspicuous that relatives call the attention of the medical attendant to these prominences, and declare them to have grown out since the illness. Now, could we discover the cause which underlies this exceptional configuration of the brain, we could scarcely fail of being much enlightened as to the laws which generally preside over the development of this organ. Are we to regard this peculiarity as an indication of progress towards perfection, or the reverse. The result of my own observations leads me to think there can be little doubt of the greater frequency of this occurrence in civilised than in savage races. Minute examination reveals great differences in the proportion the size of the convolutions bear to each other in brains of the same general size. In two foreheads of the same breadth, for example, in A the convolutions seated in the mesial line shall be much wider than in B, whilst in B the lateral convolutions shall be much wider than in A. As in different families or races, the features of the face bear very different proportions in size to each other, a certain average proportion being characteristic of each, so with the convolutions and groups of convolutions of the brain. Now, the theory I have to propose as an explanation of the protuberance of isolated cerebral convolutions is that either exercise or the crossing of races by marriage has caused offspring to be born with a predisposition towards the more energetic manifestation of a function than the extent of surface allotted to it by the brain type of its race will furnish; that this extent of surface not being susceptible of being widened without subverting the general packing arrangement and proportionate surfaces of organs and figure of the brain as a whole belonging to the type, Nature effects her purpose by thrusting the skull outwards. This theory requires that the cerebral convolutions most frequently protuberant shall be those appropriated to functions which the progress of civilisation has a tendency to cultivate, and render men more active than they are found in a ruder state of society; and, if I am right in believing that the convolutions which in the frequency with which they occur, defined on the exterior of the head, surpass all others, are those of the organs of music and causality, I think it must be admitted that so far the test does not fail. Gall especially described two different forms or modes of development assumed by the organ of music. In some of the most eminent composers, the external corners of the forehead are enlarged and rounded towards the temples, giving extent of superficies to the organ without clearly defining its outline. In others, equally celebrated, the organ presents a well defined prominence in the form of a pyramid, the base of which rests above the eye, whilst the apex reaches half way up the forehead, and terminates at its external edge. Gall gives the Mozarts, father and son, Michael Haydn, Paer, Dussek, Crescentini, and several others, as examples of the first conformation; Beethoven, Joseph Haydn, J. J. Rousseau, Gluck, etc., as examples of the second; and I may add to the list of great musicians presenting the outline of the organ in a well defined pyramidal form the names of Mendelssohn and Weber. I am acquainted with a lady, who possessed from childhood an extraordinary genius for music, in whom the organ presents the first form. The configuration of the external corners of the forehead is such as to provide a wide extent of surface for the organ of music, but no defined outline is perceptible. This lady married into a family singularly wanting in musical capacity. She has two daughters who, without equalling their mother in genius, inherit from her a capacity for music much above the average. Their heads, however, follow in general outline the type of their father's family; they lack the spacious temporal region of their mother, and present the organ of music in the pyramidal form, and this form is, beyond doubt, that which is most commonly met with in England. On an average, I have

my attention arrested at least once in six months, by seeing a very conspicuous development of the organ of music in the pyramidal form in a complete stranger. When circumstances permit, I always endeavour to ascertain whether the endowment with the faculty is commensurate with the development of the organ, and I can say with truth, that I never yet received a negative answer. This mask which I hold in my hand, I took from the head of a gentleman a few days since, as a good example of the development of the organ of music in the pyramidal form. Calling recently at an office in the city, a perfect stranger came forward to address me. As he approached, the cross-light from a window brought his organ of music into such prominent relief, that I half-involuntarily exclaimed, "Why, you ought to be a musician." "What makes you say so?" said he. "Because you have it written in your forehead," I replied. "Ah! I suppose you are a phrenologist," he rejoined; "but it is strange you should have discovered it, for I have had my head twice examined, especially for the organ of music, by lecturers on phrenology, who visited the town where I then resided, and they both told me I had very little of it. You, however, are right; by an accident you found me in this office, but I am the organist of —, and well known in the musical world."

In the course of the discussion, which was more irregular and conversational than usual, various objections were started by the Chairman, Professor McClelland, Mr. Wallace, and others, to the theory of Mr. Prideaux, as to how it was that Mr. Prideaux could distinguish between the human voice in conversation and in music, as he (Mr. Prideaux) had stated he could.

The CHAIRMAN (Professor Busk) said he should be glad to hear remarks upon the subject. He was not satisfied himself that the prominence pointed out by Mr. Prideaux was caused by the development of the brain at the particular point, or whether it might not be the temporal muscle, or whether it might not be fat.

Mr. PRIDEAUX denied that it could be a development of the temporal muscle which produced such a protuberance, as that did not extend so far.

The CHAIRMAN said he doubted whether the convolutions of the brain could produce a change of appearance on the exterior of the skull. They were often made on the interior of the skull.

Mr. PRIDEAUX said they would always find the prominences, as he showed them to exist in this case, in all great musicians.

The CHAIRMAN said it remained to be seen whether there were not brains of people of equal musical power which did not show any such external mark.

Mr. PRIDEAUX said that was just what the phrenologists had been asking the anti-phrenologists to show them for years. It was for the anti-phrenologists to produce those proofs. He would take upon himself to say that it was an invariable fact that a great power for music would be accompanied by the conformation of skull which he now pointed out.

The CHAIRMAN said in this particular instance the man Mr. Prideaux spoke of seemed to have been amongst phrenologists, and they had not discovered his musical powers.

Mr. PRIDEAUX said that was because the people who pretended to a knowledge of phrenology were often not capable of distinguishing such cases.

Mr. WALLACE complained that only one instance had been brought before them. They ought not to be asked to accept such a theory except on the production of an overwhelming mass of facts. If the crania of two hundred or three hundred musicians could be brought before them, all showing the development of that one part of the skull, then there would be some force in the argument; but to bring a solitary case, and say there were others, was merely a waste of time.

Mr. PRIDEAUX, in reply to various other questions, said that he could not tell how the brain performed its functions with regard to musical pitch. It could only, of course, be a matter of analysis, and in every great musician ever known, that part of the forehead had been very large. The theory of music was founded on the musical pitch, or the number of vibrations in a second, and in some way the organ of music, or that part of the brain, took cognisance of the number of those vibrations, just as the organ of colour

would take cognisance of the number of vibrations in the rays of light. He would venture to say that he could at once detect, in a number of strangers, those who would be likely to sing in tune. He was himself deficient in that faculty, but had an extraordinary memory for voices, and could recognise any one he knew by hearing him utter two syllables.

Mr. WALLACE : How do you distinguish between that faculty and that which gives the power of a musician ?

Mr. PRIDEAUX said by the peculiar intonation of the voice. He did not know whether physicists had as yet defined mathematically what produced an agreeable voice or otherwise, but phrenologists could, by the shape of the head, tell what sort of a voice a man had. A man with a low head never had a rich voice. There was, too, a deep ringing voice given by the presence of what the phrenologists called destructiveness, which in some actors lent great force to their outbursts of rage. As to bringing a great number of examples, that had been done by Gall years ago. Phrenologists had filled the museums with casts and examples, and he only wanted men of science to turn their attention to the subject, and to bring facts in opposition. The onus rested with their opponents to disprove the position taken by phrenologists.

The CHAIRMAN suggested to Mr. Prideaux that he should experiment upon the audience in picking out the musicians, but Mr. Prideaux demurred to that course as not being scientific in method; and the discussion shortly ended, as did also the business of the section, with a vote of thanks to the chairman.

Mr. PENGELLY, F.R.S., was called on by the President to read the *Fifth Report of the Committee on the Exploration of Kent's Cavern*. He said that beneath the floor of the "vestibule" was a layer of black soil, six to nine inches deep, which had yielded 366 flint implements, bones and teeth of recent and extinct animals, charcoal, flint cores, &c. It had been objected that people could never have lived in the caverns, because smoke would have suffocated them. An experiment which had been tried, in burning six faggots of wood, showed the fallacy of the objection. In the exploration of the cavern, a daily journal had been kept, and every circumstance was noted down. 3,948 boxes of fossil bones had been found, and these Mr. Boyd Dawkins undertook to examine for the purpose of determining the species to which they belonged. Among other objects, a bone needle had been found in the black band beneath the stalagmitic floor. The eye was capable of carrying a thread the thickness of thin twine. A bone harpoon or fish-spear, forked on one side only, had been met with. Other undoubted evidences of early human art had been found. During the years 1868-9, Mr. Everitt, who is engaged by the Rajah of Sarawak to explore the caves of Borneo, visited Kent's Hole for the purpose of familiarising himself with the mode of operation. Mr. Pengelly then detailed the various layers underlying the stalagmitic floor, in which he was aided by a series of large diagrams. The cave earth, or floor underneath the stalagmite, was full of flint implements, teeth of the mammoth, bear, hyena, &c., and gnawed and split bones. Inscriptions dated 1688 had been found on the stalagmitic walls of that part of the cavern known as the "crypt." The deduction drawn by Mr. Pengelly was that this period of time, although the dripping of water was very copious, had been insufficient to coat over and obliterate the writing. This gives some idea of the immense age of the stalagmitic floor, and of the time occupied in its formation. Beneath the earth was a breccia, and up to last year not the slightest traces of man had been found. This year, however, a flint flake was met with, thus carrying the antiquity of man further back. A monthly report had been sent up to Sir Charles Lyell. In some places the stalagmitic floor was as much as twelve feet thick. Associated with the flake were the remains of the cave-lion, the cave-bear, mammoth, &c. In fact, this was the most important anthropological relic which the cavern had yielded. Mr. John Evans, F.R.S., had seen the flint flake, and had declared it to be of undoubtedly human workmanship.

Mr. BOYD DAWKINS read a few notes on the mammalian remains men-

tioned by Mr. Pengelly. He showed that the various strata of the floor of the cavern contained remains of animals of different epochs, from the post-glacial upwards. During the time the black or upper band was being formed, a race of cannibals inhabited the cavern. The older deposits contained remains of the glutton, a species of hare larger than the existing type, the beaver, &c. Mr. Dawkins concluded by remarking on the vast antiquity of the human race as indicated by the facts mentioned in the report.

*The Extinction of the Mammoth.*—A paper on this subject was next read by Mr. H. H. HOWORTH. The various historical notices in old authors of the mammoth remains in Siberia and elsewhere, were condensed. The usual idea was that the manumoth was a sort of huge mole, which rarely came to the surface. This was the way their vast remains were accounted for. Mr. Howorth did not think the extinction of the mammoth ought to be ascribed to the men of the early stone age.

Professor PHILLIPS and Mr. BOYD DAWKINS made some remarks on the above paper, the former dwelling at some length upon the more popular geological notions of the former conditions of northern geography, and the latter observing that Mr. Howorth had misunderstood him. He had never said that the extinction of the mammoth in Siberia was owing to his being hunted down; but he had stated that in England and Western Europe generally, there was no doubt that the mammoth had become extinct by the hand of man.

Mr. HOWORTH briefly replied, stating that he still differed from Mr. Dawkins as to the extinction of the animals mentioned. He thought that different races of man had become extinct along with the animals.

Mr. PENGELLY next read a paper *On the Alleged Occurrence of Hippopotamus major and Machairodus latidens in Kent's Cavern.* Mr. Pengelly thought there was no reliable evidence as to the occurrence of the *Hippopotamus*, but the *Machairodus* was undoubtedly associated with the other remains.

In Memory of  
JAMES HUNT, Ph.D., F.S.A.,  
FOUNDER AND FIRST PRESIDENT  
OF THE  
ANTHROPOLOGICAL SOCIETY OF LONDON,  
AND  
SOLE EDITOR AND PROPRIETOR OF THIS REVIEW,  
WHO  
DIED AUGUST 29, 1869,  
AGED 36 YEARS.

## INDEX TO VOL. VII.

- Africa, Southern, 121  
Anthropological Society of Paris, proceedings of, 195  
Anthropology, Quatrefages on the progress of, 231  
— archaic, of South of England, 242  
— historic, 323  
— archaic speculations, 376  
— at the British Association, 1869, 414  
Antiquaries, Society of, 95  
Antiquity of man, 136  
Archaic anthropology at the Society of Antiquaries, 95  
Archipelago, Malay, 311  
Argyll on archaic anthropological speculations, 376  
Aryan and the Semite, the, 333  
Baldwin, historic anthropology, 323  
Bastian on the ethnography of civilised peoples, 98  
Beddoe, Dr. J., the cave cannibals of Southern Africa, 121  
Bellouet on the origin of the Gauls, 245  
Bleek, Dr., the cave cannibals of Southern Africa, 121  
Bowker, J. H., the cave cannibals of Southern Africa, 121  
Brain, localisation and functions of, 100, 201  
— Maudsley on physiology of, 192  
Brains of Austrian peoples, 92  
— weight of in Negro, 191  
Bray, C., on the science of man, 185  
— on the physiology of the brain, 268  
— on physics and metaphysics, 362  
Brazil, Burton's explorations in the, 170  
Burton, R. F., explorations in the Brazil, 170  
Cannibals of Southern Africa, 121  
Cave cannibals of Southern Africa, 121  
Civilised peoples, ethnography of, 98  
Comparative anatomy of vertebrates, 252  
Davis, J. Barnard, on the weight of the brain of the Negro, 190  
Duran, Don Agustin, on the derivation of the Spanish language from the Latin, 154  
Ethnography of civilised peoples, Bastian on, 98  
Fergusson on tree and serpent worship in India, 217  
Foramen magnum, 152  
Fossil man, 163  
Functions of the brain, 100, 201  
Gall's organology, 76  
Gauls, origin of, Bellouet on, 245  
Hincks, J. G., on the derivation of the Spanish language from the Latin, 154  
Human-ape organisms, 128  
Human, origin, theories of, 1  
Hunt, Dr. J., on the localisation of the functions of the brain, 100, 201  
— Sanford, B., on the Negro as a soldier, 40  
Ireland, the race question in, 54  
Jackson, J. W., on the race question in Ireland, 54  
— Inaugural address to the Psychological Association of Glasgow, 259  
— the Aryan and the Semite, 333  
Latin, Spanish language derived from, 154  
Le Hon's fossil man, 154  
Localisation of the functions of the brain, 100, 201  
Malay archipelago, 311  
Magnum, foramen, 152  
Man, antiquity of, 136  
— and animals, 168  
— Bray on the science of, 185  
— Carl Vogt's lectures on, 177  
Maudsley, on the physiology and pathology of the brain, 192  
Medicine, Wise on race in, 240

INDEX.

- Microcephali, Vogt on, 128  
Mixed human races, Quatrefages on,  
    22  
Music in race, 306  
Negro as a soldier, 40  
    — weight of the brain in, 190  
Nicholas, Pike v., 279  
Organology, Gall's, 76  
Origin, Theories of human,  
    — of Gauls, 245  
Owen, Professor, comparative anatomy of Vertebrates, 252  
Pengelly on archaic anthropology of the south west of England, 242  
Pike v. Nicholas, 279  
Prideaux, T. Symes, on Gall's organology, 76  
Psychological Association of Glasgow, address to, 259  
Quatrefages, A. de, on the formation of the mixed human races, 22  
    — on the progress of anthropology, 231  
Race in medicine, 240  
Race, music in, 307  
Rochet, M., characters separating man from animals, 168  
Schaafhausen, Professor, on development of human species, 366  
Semite, the Aryan and the, 333  
Serpent and tree worship in India, 217  
Soldier, the Negro, 40  
Spanish language, derivation of, 154  
Species, on development of, 366  
Theories of human origin, 1  
Tree and serpent worship in India, 217  
Vertebrates, anatomy of, 252  
Villin, M. E., Resumé of the bulletins of the Paris Society, 195  
Vogt, Dr. Carl, on microcephali, or human ape organisms, 128  
    — lectures on man, 177  
Wallace's Malay archipelago, 310  
Weights of brains of Austrian peoples, 92  
Weisbach, Dr. A., the weight proportions of brains of Austrian peoples, 92  
Wise, Dr., on race in medicine, 240  
Wyman, Jeffreys, on the portion of the foramen magnum, 152

